United States Department of the Interior

FISH AND WILDLIFE SERVICE
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Memorandum

To: Industrial Economics, Incorporated (IEc)
Cambridge, Massachusetts
Attention: Thomas Timberlake/Claire Schlemme

From: Manager, Washington Fish and Wildlife Office
Lacey, Washington

Subject: Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for Oregon spotted frog

The purpose of this memorandum is to provide information to serve as a basis for conducting an economic analysis for the proposed designation of critical habitat for the Oregon spotted frog (*Rana pretiosa*). Section 4(b)(2) of the Endangered Species Act (Act) requires the Secretary of Interior (Secretary), and therefore by delegation the U.S. Fish and Wildlife Service (Service), to consider the economic, national security, and other relevant impacts of designating a particular area as critical habitat. The Secretary may exclude an area from critical habitat if she determines that the benefits of exclusion outweigh the benefits of including the area as critical habitat, unless the exclusion will result in the extinction of the species. To comply with section 4(b)(2) of the Act and consider the economic impacts of a proposed critical habitat designation, the Service prepares an economic analysis that describes and monetizes, where possible, the probable economic impacts of the proposed regulation. The data in the economic analysis are then used to inform the balancing evaluation under section 4(b)(2) of the Act to consider any particular area for exclusion from the final designation.

Determining the economic impacts of a critical habitat designation involves evaluating the "without critical habitat" baseline versus the "with critical habitat" scenario, to identify those effects expected to occur solely due to the designation of critical habitat and not from the protections that are in place due to the species being listed under the Act. Effects due to solely the critical habitat designation equal the difference, or increment, between these two scenarios, and include the costs of both changes in management and increased administrative efforts that result from the designation. These changes are often thought of as "changes in behavior" or the "incremental effect" that would most likely result from the designation if finalized. Specific measured differences between the baseline (without critical habitat) and the designated critical habitat (with critical habitat) may include, but are not limited to, the economic effects stemming

from changes in land or resource use or extraction, environmental quality, or time and effort expended on administrative and other activities by Federal landowners, Federal action agencies, and in some instances, State and local governments or private third parties. These are the incremental effects that serve as the basis for the economic analysis.

One of the primary purposes of this memorandum is to provide information on the likelihood that activities occurring within or affecting critical habitat will be subject to restrictions above and beyond those implemented by the baseline regulatory protections and conservation measures that are in place directly or indirectly due to the listing of the species. Because the critical habitat designation is being conducted concurrent with the listing of the Oregon spotted frog, there is no prior consultation history for this species. Thus, there will be new administrative costs associated with consultations for projects that will be conducted in critical habitat after the species is listed. However, we do not anticipate the adverse modification analysis for critical habitat to result in substantial increased costs over those associated with addressing effects to the species.

There are a number of ways that designation of critical habitat could influence activities, but one of the important functions of this memorandum is to explain any differences between actions required to avoid jeopardy to the species versus actions that may be required to avoid adverse modification of critical habitat. The Service is working to update the regulatory definition of adverse modification since it was invalidated by several Courts of Appeal, including the Ninth Circuit and the Fifth Circuit. At this time (without updated regulatory language) the Service is analyzing whether destruction or adverse modification would occur based on the statutory language of the Act itself, which requires the Service to consider whether the agency's action is likely "to result in the destruction or adverse modification of habitat which is determined by the Service to be critical" to the conservation of the species. To perform this analysis, the Service considers how the proposed action is likely to affect the function of the critical habitat unit to serve the intended conservation role. The information provided below is intended to identify the possible differences for this species under the two different section 7 standards (i.e., jeopardy to the species and adverse modification of critical habitat). Ultimately, however, a determination of whether an activity may result in the adverse modification of critical habitat is based on the effects of the action to the designated critical habitat in its entirety. Due to the lack of section 7 consultations and jeopardy analyses for this species, it is difficult for us to accurately predict what costs will be associated with evaluating the differences between actions necessary to avoid jeopardy and actions required to avoid adverse modification after the species is listed. However, the information provided below is intended to identify the possible differences for the Oregon spotted frog under the different section 7 standards for jeopardy to the species and adverse modification of critical habitat.

BACKGROUND

The Oregon spotted frog inhabits emergent wetland habitats in forested landscapes, although it is not typically found under forest canopy. Historically, this species was also associated with lakes in the prairie landscape of the Puget lowlands (McAllister and Leonard 1997, p. 16). This is the most aquatic native frog species in the Pacific Northwest, as all other species have a terrestrial life stage. It is almost always found in or near a perennial body of water, such as a spring, pond, lake, sluggish stream, irrigation canal, or roadside ditch (Engler 1999, pers. comm.). Watson *et*

al. (2003, p. 298) summarized the conditions required for completion of the Oregon spotted frog life cycle as shallow water areas for egg and tadpole survival, perennially deep, moderately vegetated pools for adult and juvenile survival in the dry season, and perennial water for protecting all age classes during cold wet weather.

The Oregon spotted frog is a medium-sized frog that ranges from about 44 to 105 millimeters (mm) (1.7 to 4.1 inches (in)) in body length with females typically being larger than males. Male Oregon spotted frogs are not territorial and often gather in large groups of 25 or more individuals at specific locations (Leonard *et al.* 1993, p. 132). Breeding occurs in February or March at lower elevations and between early April and early June at higher elevations (Leonard *et al.* 1993, p. 132). Males and females separate soon after egg-laying with females returning to fairly solitary lives. Tadpoles are grazers, having rough tooth rows for scraping plant surfaces and ingesting plant tissue and bacteria. They also consume algae, detritus, and probably carrion (Licht 1974, p. 624; McAllister and Leonard 1997, p. 13). Post-metamorphic Oregon spotted frogs are opportunistic predators that prey on live animals, primarily insects, found in or near the water.

Historically, the Oregon spotted frog ranged from the lower Fraser River in British Columbia to the Pit River drainage in northeastern California. It was known from at least 48 watersheds (three in British Columbia, 13 in Washington, 29 in Oregon, and three in California). This species is known to currently inhabit emergent wetland habitats in 31 watersheds from extreme southwestern British Columbia south through the Puget Trough, and in the Cascades Range from south-central Washington at least to the Klamath Basin in southern Oregon. Oregon spotted frogs currently have a very limited distribution west of the Cascade crest in Oregon, are considered to be extirpated from the Willamette Valley in Oregon, and may be extirpated in the Klamath and Pit River basins of California. They are known to exist in five counties in Washington: Whatcom, Skagit, Thurston, Skamania and Klickitat and five counties in Oregon: Jackson, Lane, Wasco, Deschutes and Klamath.

The species' historic range has been reduced by at least 76 percent and maybe as much as 90 percent and habitat continues to be impacted and/or destroyed by human activities that result in the loss of wetlands, hydrologic changes, reduced water quality, and vegetation changes. With the disappearance of many Oregon spotted frog habitats, the species' existence has become extremely vulnerable to the loss of stream and wetland habitat, fluctuating water levels, disease, predation, poor water quality, and extirpation from stochastic events. The threats to Oregon spotted frog habitat are exacerbated by the introduction of reed canarygrass, nonnative predators (such as bullfrogs and predatory fish), and potentially climate change. Many of these threats are intermingled, and the magnitude of the combined threats to the species may supersede the species' ability to recover.

In addition, Oregon spotted frogs' eggs are extremely vulnerable to desiccation and freezing because of the species' egg-laying habits. The majority of Oregon spotted frog egg masses are laid communally in groups of a few to several hundred in shallow, often temporary, pools of water at the same locations in successive years. Populations in Oregon and Washington have been known to lay their eggs in the same locations for decades. Due to their fidelity to breeding

locations and vulnerability to fluctuating water levels, Oregon spotted frogs can experience rapid population losses that they may not be able to overcome.

The Service has proposed to list the Oregon spotted frog as a threatened species (78 FR 53582). Concurrent with the listing, the Service proposed to designate approximately 68,192 acres within Washington and Oregon, and 23.5 miles of streams in Washington as critical habitat for the Oregon spotted frog (see Tables 1 and 2 below). There are 14 proposed critical habitat units for Oregon spotted frog, six in Washington and eight in Oregon. These areas constitute our current best assessment of habitat that is needed to ensure the conservation of this species. Washington contains the following units: Unit 1 (Lower Chilliwack River), Unit 2 (South Fork Nooksack River), Unit 3 (Samish River), Unit 4 (Black River), Unit 5 (White Salmon River), and Unit 6 (Middle Klickitat River). Oregon contains the following remaining units: Unit 7 (Lower Deschutes River), Unit 8 (Upper Deschutes River), Unit 9 (Little Deschutes River), Unit 10 (McKenzie River), Unit 11 (Middle Fork Willamette River), Unit 12 Williamson River), Unit 13 (Upper Klamath Lake), and Unit 14 (Upper Klamath). Maps of the proposed critical habitat units for each species are in Appendix A.

At the time of the development of the proposed listing rule there were 455 acres and less than 1 river mile that were not known to be occupied by the Oregon spotted frog within 5 of the 14 proposed critical habitat units. However, in 2013 subsequent to the development of the proposed rule, surveys for Oregon spotted frogs resulted in changing our determination of occupancy for 100 acres within the proposed critical habitat, thus reducing the amount of area of "not known to be occupied" from 455 acres to 355 acres. In Unit 8a, surveys resulted in changing our determination of occupancy of 42 acres on U.S. Forest Service (USFS) lands and in Unit 13, surveys resulted in changing our determination of occupancy of 58 acres on private lands. All of the "not known to be occupied" acres and river mile occur within units that are known to be occupied, have similar habitat qualities and features as the known occupied areas within the same unit, but may not have not been surveyed in order to determine occupancy. Based on the newest information, the areas that would be considered as unoccupied critical habitat are as follows:

- Critical Habitat Unit 1 (Lower Chilliwack River Washington), approximately 137 acres and 0.38 river mile;
- Critical Habitat Unit 8 (Upper Deschutes River Oregon (subunit 8A)), approximately 135 acres;
- Critical Habitat Unit 9 (Little Deschutes River, Oregon), approximately 45 acres;
- Critical Habitat Unit 12 (Williamson River Oregon) 13 acres;
- Critical Habitat Unit 13 (Upper Klamath Lake Oregon) 35 acres.

Unit Descriptions

Critical Habitat Unit 1: Lower Chilliwack River

The Lower Chilliwack River unit consists of 280 acres (113 ha) and 8 river miles (12 river km) in Whatcom County, Washington. This unit includes the Sumas River and adjacent seasonally

wetted areas from approximately the intersection with Hopewell Road downstream to the intersection with Gillies Road. This unit also includes portions of Swift Creek and an unnamed tributary just south of Swift Creek, along with their adjacent seasonally wetted areas. Oregon spotted frogs are known to currently occupy 143 acres (58 ha) and 7 river miles (11 river km) in this unit (Bohannon *et al.* 2012). Currently, a 137-acres (55-ha) area and a river segment of 0.38 river miles (0.61 river km) are "not known to be occupied" (see explanation of this definition in the proposed critical habitat rule). We consider the "not known to be occupied" acres and river miles to be essential for the conservation of the species because they provide egg-laying habitat and an aquatic movement corridor for the Oregon spotted frogs in the unnamed tributary. Within this unit, currently, 13 acres (5 ha) are managed by Whatcom County, and 267 acres (108 ha) and 8 river miles (12 river km) are privately owned. All of the essential physical or biological features are found within the unit, but are impacted by invasive plants (reed canarygrass), woody vegetation plantings, and hydrologic modification of river flows. The essential features within this unit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features.

Critical Habitat Unit 2: South Fork Nooksack River

The South Fork Nooksack River unit consists of 111 acres (45 ha) and 4 river miles (6 river km) in Whatcom County, Washington. This unit includes the Black Slough and adjacent seasonally wetted areas from the headwaters to the confluence with South Fork Nooksack River. This unit also includes wetlands and seasonally wetted areas along Tinling Creek and the unnamed tributary to the Black Slough. Oregon spotted frogs are known to currently occupy this unit (Bohannon *et al.* 2012). The entire area within this unit is under private ownership, including one nonprofit conservation organization. All of the essential physical or biological features are found within the unit, but are impacted by invasive plants (reed canarygrass), woody vegetation plantings and succession, and beaver removal efforts. The essential features within this unit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features.

Critical Habitat Unit 3: Samish River

The Samish River unit consists of 984 acres (398 ha) and 2 river miles (3 river km) in Whatcom and Skagit Counties, Washington. This unit includes the Samish River and adjacent seasonally wetted areas from the headwaters downstream to the confluence with Dry Creek. Oregon spotted frogs are known to currently occupy this unit (Bohannon *et al.* 2012). Within this unit, currently less than 1 acre (less than 1 ha) is managed by Washington Department of Natural Resources (WDNR), 1 acre (less than 1 ha) is managed by Skagit County, and 982 acres (397 ha) and 2 river miles (3 river km) are privately owned, including two nonprofit conservation organizations. All of the essential physical or biological features are found within the unit, but are impacted by invasive plants (reed canarygrass), woody vegetation plantings and succession, and beaver removal efforts. The essential features within this unit may require special management considerations or protection to ensure maintenance or improvement of the existing

nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features.

Critical Habitat Unit 4: Black River

The Black River unit consists of 4,881 acres (1,975 ha) and 7 river miles (12 river km) in Thurston County, Washington. This unit includes the Black River and adjacent seasonally wetted areas from Black Lake downstream to approximately 3 mi (5 km) south of the confluence with Mima Creek. This unit also includes six tributaries to the Black River (Dempsey Creek, Salmon Creek, Blooms Ditch, Allen Creek, Beaver Creek, and Mima Creek), one tributary to Black Lake (Fish Pond Creek), and their adjacent seasonally wetted areas. Oregon spotted frogs are known to currently occupy this unit (Hallock 2013). Within this unit, currently 877 acres (355 ha) are Federally managed by the Nisqually National Wildlife Refuge (NWR) (873 acres (353 ha)) and the Department of Energy (4 acres (2 ha)); 375 acres (151 ha) are managed by State agencies, including the Washington Department of Fish and Wildlife (WDFW) and WDNR; 151 acres (61 ha) are City or County managed; and 3,478 acres (1,408 ha) are privately owned, including two nonprofit conservation organizations. Within this unit, currently 6 river miles (10 river km) are privately owned; less than 1 river mile (less than 1 river km) is dually managed/owned (i.e., different owners on opposite sides of the river); and less than 1 river mile (less than 1 river km) is managed by each of the following: Nisqually NWR, State agencies, and Thurston County. All of the essential physical or biological features are found within the unit, but are impacted by invasive plants (reed canarygrass), woody vegetation plantings and succession, and beaver removal efforts. The essential features within this unit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features.

Critical Habitat Unit 5: White Salmon River

The White Salmon River unit consists of 1,225 acres (496 ha) and 3 river miles (5 river km) in Skamania and Klickitat Counties, Washington. This unit includes the Trout Lake Creek from the confluence with Little Goose Creek downstream to the confluence with White Salmon River, Trout Lake, and the adjacent seasonally-wetted areas. Oregon spotted frogs are known to currently occupy this unit (Hallock 2011 and Hallock 2012). Within this unit, currently 108 acres (44 ha) and 1 river mile (2 river km) are managed by the USFS, 1,084 acres (439 ha) are managed by WDNR as the Trout Lake Natural Area Preserve (NAP), and 33 acres (13 ha) and 2 river miles (4 river km) are privately owned. All of the essential physical or biological features are found within the unit, but are impacted by invasive plants and nonnative predaceous fish. The essential features within this unit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features. The Trout Lake NAP (WDNR) has a draft Management Plan that is used for management on WDNR lands in this unit and we are considering exclusion of these lands under section 4(b)(2) of the Act (see **Exclusions**, below).

Critical Habitat Unit 6: Middle Klickitat River

The Middle Klickitat River unit consists of 6,846 acres (2,770 ha) in Klickitat County, Washington. This unit encompasses Conboy Lake, Camas Prairie, and all water bodies therein, and extends to the northeast along Outlet Creek to Mill Pond. The southwestern edge is approximately Laurel Road, the southern edge is approximately BZ Glenwood Highway, and the northern edge follows the edge of Camas Prairie to approximately Willard Spring. Oregon spotted frogs are known to currently occupy this unit (Hayes and Hicks 2011). Within this unit, currently 4,048 acres (1,638 ha) are managed by the Conboy NWR; 2 acres (1 ha) are managed by Klickitat County, and 2,796 acres (1,132 ha) are privately owned. All of the essential physical or biological features are found within the unit, but are impacted by water management, exotic plant invasion, native tree encroachment, and nonnative predaceous fish and bullfrogs. The essential features within this unit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features.

Critical Habitat Unit 7: Lower Deschutes River

The Lower Deschutes River unit consists of 69 acres (28 ha) in Wasco County, Oregon. This Unit includes Camas Prairie and Camas Creek, a tributary to the White River and is located on the Mt. Hood National Forest. Oregon spotted frogs are known to currently occupy this unit (C. Corkran, pers. comm. 2012). Within this unit, 63 acres (25 ha) are managed by the USFS Mt. Hood National Forest, and 6 acres (2.5 ha) are privately owned. All of the essential physical or biological features are found within the unit but are impacted by vegetation succession (conifer encroachment). The essential features within this unit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features.

Critical Habitat Unit 8: Upper Deschutes River

The Upper Deschutes River unit includes 24,398 acres (9,873 ha) in Deschutes County, Oregon, in the Upper Deschutes River sub-basin. The Upper Deschutes River unit extends from headwater streams and wetlands draining to Crane Prairie and Wickiup Reservoirs to the Deschutes River downstream to Bend, Oregon. This unit also includes Odell Creek and Davis Lake. Within this unit, currently 23,210 acres (9,393 ha) are managed by the USFS Deschutes National Forest, 180 acres (73 ha) are managed by Oregon Parks and Recreation Department, 45 acres (18 ha) are owned by the county, and 962 acres (389 ha) are privately owned. The Upper Deschutes River unit consists of two subunits: Below Wickiup Dam (Subunit 8A) and Above Wickiup Dam (Subunit 8B). Oregon spotted frogs are known to currently occupy 24,221 acres (9,801 ha) in unit 8 (USGS, Bowerman, and USFS multiple data sources). Within subunit 8A, 135 acres (55 ha) are "not known to be occupied," but are essential to the conservation of the species for the reasons identified in the subunit description below. The essential features within this unit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic

movement corridors; or refugia habitat, and to address any changes that could affect these features. Within this unit, we are considering exclusion of lands that may be managed under a Sunriver Candidate Conservation Agreement with Assurances (CCAA), the Old Mill Pond Oregon spotted frog CCAA, and the Deschutes Basin Habitat Conservation Plan under section 4(b)(2) of the Act.

Subunit 8A: Below Wickiup Dam

This subunit includes 2,366 acres (958 ha). This subunit consists of the Deschutes River and associated wetlands downstream of Wickiup Dam to Bend, Oregon, beginning at the outlet of an unnamed tributary draining Dilman Meadow. Currently, two areas totaling 135 acres (55 ha) are "not known to be occupied". We consider the "not known to be occupied" acres to be essential for recovery of the species because they provide aquatic movement corridors between the few remaining populations below Wickiup Dam (e.g., Dilman Meadow and frog populations downstream along the Deschutes River). Within this subunit, currently 1,180 acres (477 ha) are managed by the USFS Deschutes National Forest, 180 acres (73 ha) are managed by Oregon Parks and Recreation Department, 45 acres (18 ha) are managed by Deschutes County, and 962 acres (389 ha) are privately owned. All of the essential physical or biological features are found within the subunit but are impacted by hydrologic modification of river flows, reed canarygrass, predaceous fish, and bullfrogs. The essential features within occupied habitat within this subunit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features.

Subunit 8B: Above Wickiup Dam

This subunit includes 22,031 acres (8,916 ha). This subunit includes the following lakes, including associated wetlands, in the upper watersheds that flow into the Crane Prairie/Wickiup Reservoir system: Hosmer Lake, Lava Lake, Little Lava Lake, Winopee Lake, Muskrat Lake, and Little Cultus Lake, Crane Prairie, Wickiup Reservoirs, and Davis Lake. Deep water areas (i.e., greater than 20 ft (6 m) without floating or submerged aquatic vegetation are not included as critical habitat within these waterbodies because they do not contain the primary constituent elements of critical habitat for Oregon spotted frog. The following riverine waterbodies and associated wetlands are critical habitat: Deschutes River from Lava Lake to Wickiup Reservoir, Cultus Creek downstream of Cultus Lake, Deer Creek downstream of Little Cultus Lake, and Odell Creek from an occupied unnamed tributary to the outlet in Davis Lake. The land within this subunit is primarily under USFS ownership. Oregon spotted frogs are known to currently occupy this subunit (USGS 2006 and 2012 datasets; USFS 2012 dataset). Within this subunit, currently 22,031 acres (8,916 ha) are managed by the USFS Deschutes National Forest and less than one acres (0.14 ha) is in private ownership. All of the essential physical or biological features are found within the subunit but are impacted by vegetation succession and nonnative predaceous fish. The essential features within this subunit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features.

Critical Habitat Unit 9: Little Deschutes River

The Little Deschutes River unit consists of 11,361 acres (4,598 ha) in Klamath and Deschutes Counties, Oregon. The Little Deschutes River unit includes the extent of the Little Deschutes River and associated wetlands from the headwaters to the confluence with the Deschutes River, 1 mile (1.6 km) south of Sunriver and approximately 20 miles (32.2 km) south of Bend, Oregon. This unit includes the following tributaries, including adjacent wetlands: Big Marsh Creek, Crescent Creek, and Long Prairie Creek. Oregon spotted frogs are known to currently occupy 11,316 acres (4,490 ha) in this unit (USGS, Bowerman, and USFS multiple data sources). Currently, one 45-acres (18-ha) area is "not known to be occupied." We consider the "not known to be occupied" acres to be essential for the conservation of the species because they provide an aquatic movement corridor between populations along the Little Deschutes River. Within this unit, currently 5,275 acres (2,135 ha) are managed by the USFS Deschutes National Forest and Prineville Bureau of Land Management (BLM), 216 acres (87 ha) are managed by the State of Oregon, 81 acres (33 ha) are managed by Deschutes and Klamath Counties, and 5,789 acres (2,343 ha) are privately owned. Additionally, the essential physical or biological features are found within the unit but are impacted by hydrologic manipulation of water levels for irrigation, nonnative predaceous fish, reed canarygrass, and bullfrogs. The essential features within occupied areas within this unit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features. Within this unit, we are considering exclusion of lands that may be managed under the Deschutes Basin Habitat Conservation Plan under section 4(b)(2) of the Act (see **Exclusions**, below).

Critical Habitat Unit 10: McKenzie River sub-basin

The McKenzie River unit consists of 98 acres (40 ha) in Lane County, Oregon. This critical habitat unit occurs in the Mink Lake Basin, located in the headwaters of the main South Fork of the McKenzie River on the McKenzie River Ranger District of the Willamette National Forest. The McKenzie River unit includes seven wilderness lakes, marshes, and ponds: Penn Lake, Corner Lake, Boat Lake, Cabin Meadows, two unnamed marshes and a pond northeast of Penn Lake. A small segment of the South Fork McKenzie River between the two unnamed marshes also is included within this critical habitat unit. The entire area within this unit is under USFS ownership. Oregon spotted frogs are known to currently occupy this unit (Adams *et al.* 2011). All of the essential physical or biological features are found within the unit, but are impacted by nonnative predaceous fish, isolation, and vegetation encroachment. The essential features within this unit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features.

Critical Habitat Unit 11: Middle Fork Willamette River

The Middle Fork Willamette River unit consists of 292 acres (118 ha) in Lane County, Oregon. This unit includes Gold Lake and bog, which are located in the 465–acres (188–ha) Gold Lake

Bog Research Natural Area on the upstream end of Gold Lake on the Willamette National Forest. The entire area within this unit is under USFS ownership. Oregon spotted frogs are known to currently occupy this unit (USDA Forest Service dataset 2011). All of the essential physical or biological features are found within the unit, but are impacted by nonnative predaceous fish, isolation, and vegetation encroachment. The essential features within this unit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features.

Critical Habitat Unit 12: Williamson River

The Williamson River unit consists of 15,152 acres (6,132 ha) in Klamath County, Oregon. This unit includes the Williamson River and adjacent seasonally wetted areas in Klamath Marsh NWR 4.89 mi (7.87 km) east of Silver Lake Highway, north to 0.998 mi (1.61 km) southeast of Big Springs, north through the Klamath Marsh NWR to 0.24 mi (0.36 km) southeast of Three Creek spring, and upstream to 2.14 mi (3.44 km) north of the confluence with Aspen Creek. This unit also includes a portion of one tributary to the Williamson River (Jack Creek) and its adjacent seasonally wetted areas from National Forest Road 94 to 0.132 mi (0.212 km) south of National Forest Road 88. Oregon spotted frogs are known to currently occupy 15,139 acres (6,127 ha) in this unit (USGS, USFS, and USFWS multiple data sources). Currently, one 13 acre (5-ha) area is "not known to be occupied." We consider the "not known to be occupied" acres to be essential for the conservation of the species because they provide an aquatic movement corridor between Oregon spotted frogs in the Klamath Marsh NWR to frogs in the Upper Williamson River. Within this unit, 10,335 acres (4,182 ha) are federally managed by the Klamath Marsh NWR and the USFS Fremont-Winema National Forest, and 4,817 acres (1,949 ha) are privately owned. Additionally, the essential physical or biological features are found within the unit, but are impacted by invasive plants (reed canarygrass), woody vegetation succession, absence of beaver, and nonnative predators. The essential features within occupied areas within this unit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features.

Critical Habitat Unit 13: Upper Klamath Lake

The Upper Klamath Lake unit consists of 2,251 acres (911 ha) in Klamath County, Oregon. This unit includes the Wood River and its adjacent seasonally wetted areas from its headwaters downstream to the BLM south levee road just north of the confluence with Agency Lake as well as the complete length of the Wood River Canal (west of the Wood River) and its adjacent seasonally-wetted areas starting 1.80 mi (2.90 km) south of Weed Road and continuing south. This unit also includes one tributary to the Wood River (Fort Creek) and its adjacent seasonally wetted areas. In addition, this unit includes three creeks (Sevenmile, Crane, and Fourmile) that flow into Sevenmile Canal and then into Agency Lake and their adjacent seasonally wetted areas.

Sevenmile Creek includes 1.40 mi (2.25 km) beginning north of Nicholson Road, south to the confluence of Crane Creek as well as two tributaries (Blue Spring and Short Creek) and the associated, adjacent seasonally wetted areas. Crane Creek includes adjacent seasonally wetted areas 0.28 mi (0.44 km) from its headwaters south to the confluence with Sevenmile Creek as well as two tributaries (Mares Egg spring and a portion of an unnamed spring to the west of Crane Creek 0.16 mi (0.30 km) south of three unnamed springs near Sevenmile Road). Fourmile Creek includes the adjacent seasonally wetted areas associated with the historical Crane Creek channel, Threemile Creek, Cherry Creek, Jack springs, Fourmile springs, the confluence of Nannie Creek, and the north-south canals that connect Fourmile Creek to Crane Creek.

Oregon spotted frogs are known to currently occupy 2,168 acres (877 ha) in this unit (BLM, USFS, USGS, and USFWS multiple data sources). Currently, two areas totaling 35 acres (14 ha) are "not known to be occupied." We consider the "not known to be occupied acres" to be essential for the conservation of the species because they contain some of the physical and biological features necessary to support Oregon spotted frogs and are adjacent to areas known to be occupied by Oregon spotted frogs (Fort Creek to the Wood River). In addition, they provide an aquatic movement corridor between Oregon spotted frogs in Sevenmile Creek to frogs in Crane Creek and its associated tributaries.

Within this unit, 1,243 acres (503 ha) are managed by the BLM and Fremont-Winema National Forest, 6 acres (3 ha) are managed by Oregon State Parks, and 1,002 acres (405 ha) are privately owned. All of the essential physical or biological features are found within the unit, but are impacted by invasive plants (reed canarygrass), woody vegetation plantings and succession, hydrological changes, and nonnative predators. The essential features within this unit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features.

Critical Habitat Unit 14: Upper Klamath

The Upper Klamath unit consists of 245 acres (99 ha) of lakes and creeks in Klamath and Jackson Counties, Oregon. In Klamath County, Buck Lake critical habitat includes seasonally wetted areas adjacent to the western edge of Buck Lake encompassing Spencer Creek, three unnamed springs, and Tunnel Creek. Parsnip Lakes, in Jackson County, includes seasonally wetted areas associated with Keene Creek from the Keene Creek dam to 0.55 mi (0.88 km) east from the confluence of Mill Creek as well as four lakes associated with the creek. Oregon spotted frogs are known to currently occupy this unit (BLM, USFS, USGS, and USFWS multiple data sources). Within this unit, 85 acres (34 ha) are managed by the BLM and Fremont-Winema National Forest, and 160 acres (65 ha) are privately owned. All of the essential physical or biological features are found within the unit, but are impacted by woody vegetation succession, nonnative predators, lack of beaver, and hydrological changes. The essential features within this unit may require special management considerations or protection to ensure maintenance or improvement of the existing nonbreeding, breeding, rearing, and overwintering habitat; aquatic movement corridors; or refugia habitat, and to address any changes that could affect these features.

TABLE 1. Approximate Area and Landownership in proposed Critical Habitat Units for the Oregon Spotted Frog.
Note: Area sizes may not sum due to rounding. Area estimates reflect all land and stream miles within critical habitat unit boundaries, except those stream miles included in Table 2.

Critical Habitat Unit	Federal Acres (Ha)	State Acres (Ha)	County Acres (Ha)	Private/Local Municipalities Acres (Ha)	Total
Washington					
1. Lower Chilliwack River	0	0	13 (5)	267 (108)	280 (113)
2. South Fork Nooksack River	0	0	0	111 (45)	111 (45)
3. Samish River	0	1(<1)	1 (< 1)	982 (398)	984 (398)
4. Black River	877 (355)	375 (151)	151 (61)	3,478 (1,408)	4,881 (1,975)
5. White Salmon River	108 (44)	1,084 (439)	0	33 (13)	1,225 (496)
6. Middle Klickitat River	4,048 (1,638)	0	2 (1)	2,796 (1132)	6,846 (2,770)
Oregon					
7. Lower Deschutes River	63 (25)	0	0	6 (2.5)	69 (28)
8. Upper Deschutes River	23,211 (9,393)	180 (73)	45 (18)	962 (389)	24,398 (9,873)
8A. Upper Deschutes River, Below Wickiup Dam	1,180 (477)	180 (73)	45 (18)	961 (389)	2,366 (958)
8B. Upper Deschutes River, Above Wickiup Dam	22,031 (8,916)	0	0	< 1	22,031 (8,916)
9. Little Deschutes River	5,275 (2,045)	216 (87)	81 (33)	5,789 (2,343)	11,361 (4,508)
10. McKenzie River	98 (40)	0	0	0	98 (40)
11. Middle Fork Willamette River	292 (118)	0	0	0	292 (118)
12. Williamson River	10,335 (4,182)	0	0	4,817 (1,949)	15,152 (6,132)
13. Upper Klamath Lake	1,243 (503)	6 (3)	0	1,002 (405)	2,251 (911)
14. Upper Klamath	85 (34)	0	0	160 (65)	245 (99)
Total	45,635 (18, 377)	1,862 (753)	293 (118)	20,402 (8,258)	68,192 (27,507)

TABLE 2. Approximate River Mileage and Ownership within proposed Critical Habitat Units for the Oregon Spotted Frog. Note: River miles (km) may not sum due to rounding. Mileage estimates reflect stream miles within critical habitat unit boundaries that are not included in area estimates in Table 1.

Ownership*	Federal River mile (km)	Federal/Private River mile (km)	State River mile (km)	State/Private River mile (km)	County River mile (km)	County/Private River mile (km)	Private/Local Municipalities River mile (km)	Total
1. Lower Chilliwack River	0	0	0	0	0	0	7.63 (12.28)	7.63 (12.28)
2. South Fork Nooksack River	0	0	0	0	0	0	3.56 (5.73)	3.56 (5.73)
3. Samish River	0	0	0	0	0	0	1.73 (2.78)	1.73 (2.78)
4. Black River	0.06 (0.10)	0.06 (0.09)	0.45 (0.73)	0.05 (0.07)	0.64 (1.02)	0.27 (0.43)	5.90 (9.49)	7.42 (11.94)
5. White Salmon River	0.91 (1.46)	0	0	0	0	0	2.30 (3.70)	3.20 (5.15)
Total	0.97 (1.55)	0.06 (0.09)	0.5 (0.8)	0.05 (0.07)	0.63 (1.02)	0.27 (0.43)	21.12 (33.97)	23.54 (37.88)

* Ownership – multi-ownership (such as Federal/Private) indicate different ownership on each side of the river/stream/creek.

The proposed critical habitat designation includes both acreage and stream miles. No stream miles alone were proposed for designation in Oregon as streams were included within the acreage of the larger Unit designation. Approximately 67% is under Federal ownership, 3% under State ownership, 30% under local municipality or private ownership and less than 1% under County jurisdictions. For the river and stream miles, 90% are owned by both private and local municipalities, 4% are under Federal ownership, 3% are under County ownership, 2% are under State ownership, and less than 1% are a mix of Federal, private, County, State ownership. No lands or stream reaches are proposed for designation on Tribal lands. No lands are being considered for exemption under section 4(a)(3) of the Act because there are no Department of Defense lands within the proposed critical habitat designation.

Oregon spotted frog proposed critical habitat overlaps with the designated critical habitat of five species, including four fish species and the northern spotted owl. While the Oregon spotted frog critical habitat co-occurs in some units with the northern spotted owl (*Strix occidentalis caurina*), activities undertaken for the two species rarely overlap and conservation measures for either species would be unlikely to benefit the other. Conservation efforts designed to benefit the co-occurring fish species may be beneficial, neutral, or detrimental to Oregon spotted frogs. Table 3 provides the four Act listed fish species and their critical habitat which co-occur with the Oregon spotted frog, as well as the one co-occurring terrestrial species for which conservation measures may affect Oregon spotted frogs.

Table 3: Unit and Co-occurring Listed Species or Existing Critical Habitat

OSF Critical Habitat Unit	Co-occurring Listed Species or Existing Critical Habitat for Listed Species?	River Miles of overlap between critical habitats	Consultation History in areas of overlap
1	Bull trout	0.0	No consultation history for these fish species within the area of proposed Oregon spotted frog critical habitat
2	Puget Sound chinook and critical habitat	1.5	
3	Bull trout and critical habitat	8.5	
3	Puget Sound steelhead		
8b	Bull trout and critical habitat in Odell Creek	6.4	No current consultation on bull trout CH
13	Bull trout and critical habitat in Wood River, Fort Creek, Sevenmile Creek, Fourmile Creek, and Crane	35.3	See text below

	Creek		
13	Lost River sucker and critical habitat in Wood River	1.3	See text below
13	Shortnose sucker and critical habitat in Wood River	1.3	See text below
13	Northern spotted owl and critical habitat Sevenmile Creek, Crane Creek, and Fourmile Creek	34 acres (14 ha)	See text below
14	Northern spotted owl and critical habitat Spencer Creek and Keene Creek	44 acres (18 ha)	See text below

WHAT ARE ACTION AGENCIES ALREADY DOING BECAUSE OF THESE OTHER CRITICAL HABITAT DESIGNATIONS: ACTIVITIES THAT BENEFIT THE FROG OR THAT ARE DETRIMENTAL TO FROG (I.E. CHANGE THE RECOMMENDATIONS FOR FISH TO NOT NEGATIVELY AFFECT FISH):

Oregon spotted frogs overlap with listed Puget Sound chinook (*Oncorhynchus tshawytscha*) in Unit 2 and with listed Puget Sound steelhead (*Oncorhynchus mykiss*) in Unit 3. However, NMFS does not have any consultations on record for these two species within the Oregon spotted frog proposed critical habitat. Therefore, there are no conservation measures being conducted in accordance with section 7 consultation.

In Washington, bull trout (*Salvelinus confluentus*) co-occur with Oregon spotted frogs in the three sub-basins, the Lower Chilliwack, South Fork Nooksack, and Samish Rivers. In only one of these sub-basins is there overlap between critical habitats. None of the areas where Oregon spotted frogs occur are spawning habitat for bull trout; therefore, the overlap between the species is foraging, migration, or overwintering habitat for bull trout. There are no Federally-owned or managed lands in these sub-basins; therefore, section 7 consultations consist of activities that require a permit, such as from the Army Corps of Engineers (Corps) for in-water work or Federally-funded activities, such as through the Federal Highways Administration, Natural Resources Conservation Service (NRCS), or Farm Service Agency (FSA). Since 2006, there have been no section 7 consultations for bull trout within the proposed Oregon spotted frog critical habitats in Units 1, 2, or 3. Therefore, there are no conservation measures being conducted in accordance with section 7 consultation for bull trout.

The 2011 USFWS Biological Opinion (BO) on USFS Aerial Application of Fire Retardants on National Forest System (NFS) lands addresses the impacts of the misapplications of fire retardants on threatened, and endangered, and proposed listed species throughout all NFS lands. The BO specifically addresses the risk and effects of misapplications on bull trout, northern

spotted owl, Lost River and shortnose suckers and their associated critical habitats. Only project design criteria (PDC) for the aquatic species were applicable to the Oregon spotted frog including a 300 foot avoidance buffer of perennial and intermittent streams, lakes, ponds, identified springs, and reservoirs (USFWS 2011, pp. 79 and 335). In addition specific for bull trout, the USFS agreed to follow 2011 retardant use guidelines for Aircraft Operations, conduct annual preseason coordination and training on guidelines and maps, monitor the effects of their actions on the species, and in areas that are occupied by or designated critical habitat for threatened, endangered, or proposed listed species use only water or less toxic fire retardants (USFWS 2011, pp. 79 and 83). However, the USFS acknowledged that the ephemeral or intermittent streams were at a higher risk for retardant misapplications (USFWS 2011, p. 83). The associated Terms and Conditions (T/C) for bull trout from the Service also require the USFS to develop a water monitoring plan and monitor water quality in the event of a misapplication (USFWS 2011, p. 438).

These PDCs and T/C may be sufficient for Oregon spotted frogs that co-occur with bull trout in lake or pond habitats. However in areas where Oregon spotted frog occur in the margins of the riparian habitat or within ephemeral or intermittent habitat the 300 ft buffer may not be sufficient.

The Aquatic Restoration Biological Opinion II (as amended July 2013) (ARBO II) is a programmatic Biological Opinion (BO) that covers bull trout, Lost River (*Deltistes luxatus*), shortnose sucker (*Chasmistes brevirostis*), and the northern spotted owl for proposed actions that fund or carry out 20 categories of restoration actions on Bureau of Indian Affairs (BIA), USFS, and BLM lands administered by offices in Oregon and Washington, which includes lands in Oregon, Washington, Idaho, Nevada and California, and the Coquille Indian Reservation in Oregon and on private lands where they help achieve USFS or BLM aquatic restoration goals.

The categories of restoration actions include:

1. Fish Passage Restoration (Stream Simulation Culvert and Bridge Projects; Headcut and Grade Stabilization; Fish Ladders; Irrigation Diversion Replacement/Relocation and Screen Installation/Replacement)
2. Large Wood (LW), Boulder, and Gravel Placement (LW and Boulder Projects; Engineered Logjams; Porous Boulder Weirs and Vanes, Gravel Augmentation; Tree Removal for LW Projects)
3. Dam, Tide gate, and Legacy Structure Removal
4. Channel Reconstruction/Relocation
5. Off- and Side-Channel Habitat Restoration
6. Streambank Restoration
7. Set-back or Removal of Existing Berms, Dikes, and Levees
8. Reduction/Relocation of Recreation Impacts
9. Livestock Fencing, Stream Crossings and Off-Channel Livestock Watering
10. Piling and other Structure Removal
11. In-channel Nutrient Enhancement
12. Road and Trail Erosion Control and Decommissioning
13. Non-native Invasive Plant Control
14. Juniper Removal

15. Riparian Vegetation Treatment (controlled burning)
16. Riparian Vegetative Planting
17. Bull Trout Protection
18. Beaver Habitat Restoration
19. Sudden Oak Death (SOD) Treatments
20. Fisheries, Hydrology, Geomorphology Wildlife, Botany, and Cultural Surveys in Support of Aquatic Restoration

The Action Agencies shall incorporate appropriate aquatic and terrestrial conservation measures with PDC listed in the aquatic restoration BA along with any terms and conditions included in the subsequent ARBO II into contract language or all appropriate implementation plans. Although the PDC and conservation measures are intended to minimize impacts to aquatic and terrestrial species (USFWS 2013, pp. 11-68), certain restoration actions categories (e.g., fish passage) should be evaluated by Level 1 Teams to ensure they are protective of Oregon spotted frog critical habitat primary constituent elements (PCE). The majority ARBO II PDC and conservation measures will provide benefit to the Oregon spotted frog. However, some PDC and conservation measures will require future discussion in limited areas of the Oregon spotted frog's range to ensure the incorporation of Oregon spotted frog critical habitat PCE's. Those PDC and conservation measures include: the process of electrofishing for bull trout (USFWS 2013, pp. 17-18; pp. 49-50); the de-watering of construction sites for screen implementation (USFWS 2013, p. 18); gravel augmentation (USFWS 2013, p. 27); livestock fencing or exclusion (USFWS 2013, p. 38); and riparian vegetation planting (USFWS 2013, p. 49). Two PDC or conservation measures that were not discussed were the need for vegetation management to maintain early seral habitat and the need to control or limit the spread of bullfrogs (*Lithobates catesbeiana*).

In addition to the ARBO II and the National Fire Retardant Consultation (see discussion above) there have been multiple BO's completed on the three listed fish species' 2010 critical habitat designation in Unit 13. The following PDC's and conservation measures have been implemented by action agencies to reduce their impacts to bull trout and their critical habitat: erosion control, restriction of mechanical treatments in riparian areas, handling of fuels and other substances a minimum of 150 feet from stream, re-vegetation of post-construction zone, limiting in water work to August 1-September 30, on-site monitor to salvage stranded fish, prohibition of fire retardant in watersheds, and flow diversions during in-water work. In addition, when using piscicide to reduce or remove non-native competitors of bull trout, agencies have implemented amphibian surveys and salvage efforts. These PDCs and conservation measures may provide some benefit to the Oregon spotted frog.

Oregon spotted frogs overlap with the listed Lost River and shortnose suckers (suckers) in Unit 13 of Oregon. In addition to the ARBO II and the National Fire Retardant Consultation (see discussion above) there have been multiple BO's completed on these species' 2012 critical habitat designation. The following PDC's and conservation measures have been implemented by action agencies to reduce their impacts to suckers and their critical habitat: erosion control, restriction of mechanical treatments in riparian areas, handling of fuels and other substances a minimum of 150 feet from stream, re-vegetation of post-construction zone, limiting in water work to August 1-September 30, on-site monitor to salvage stranded fish, prohibition of fire

retardant in watersheds, and flow diversions during in-water work. These PDCs and conservation measures may provide some benefit to the Oregon spotted frog.

Conservation measures and PDC's for the northern spotted owl critical habitat where it overlaps with Oregon spotted frog deal primarily with riparian areas. There are no biological opinions for this species and its 2012 critical habitat designation. However, there are project design criteria for the species 1992 critical habitat designation. They include: protection of overhead canopy in riparian areas for bull trout and suckers, limiting the soil disturbance with no-mechanical entry spaces in treatment areas, minimizing sediment delivering into the water, removing undesirable vegetation (i.e. juniper), aspen restoration, limiting the number of roads created, restoring newly created roads to their original conditions, no use of chemical retardants, and placing screens on pumps when removing water for fire reduction purposes (USFWS 2006, pp. A4-A7). These generally appear to benefit the Oregon spotted frog as well as the northern spotted owl.

BASELINE ANALYSIS

Identify conservation plans and regulatory mechanisms that provide protection to the species and its habitat absent the critical habitat designation.

Conservation Plans/Efforts
There are no approved/finalized Habitat Conservation Plans that overlap with proposed critical habitat. The approved/finalized Habitat Conservation Plans that include Oregon spotted frog do not include areas where the species is currently known to exist; therefore, these plans afford no protections to the species. These plans are unlikely to be amended to expand coverage into currently occupied areas.

The Trout Lake Natural Area Preserve is operating under a draft management plan that includes a variety of conservation measures specific to Oregon spotted frog habitat management. We anticipate that these activities will continue with or without the critical habitat designation.

The following are ongoing conservation efforts that provide some benefits to the Oregon spotted frog and are considered part of the baseline because these activities will occur with or without critical habitat designation.

While there are no formal conservation plans for the Oregon spotted frog in Washington, some conservation efforts have been taking place in Units 4, 5, and 6. Habitat management to control reed canarygrass, including mowing, shade cloth installation, and limited grazing, are likely to continue on Federal, State, and conservation ownerships in order to maintain egg-laying habitat.

Sunriver Nature Center has been monitoring the frog population at the Sunriver Resort since 2000. Although this area is affected by the fluctuating flows out of Wickiup Reservoir, Sunriver Nature Center has constructed weirs that allow the water level to be steady or rising from the time of egg-laying through hatching, thus assisting the persistence of this large and stable population.

Federal Regulations/Acts
There are no Federal laws that specifically protect the Oregon spotted frog. However, the following Federal laws and regulations provide some benefits to the Oregon spotted frog and are considered part of the baseline because these benefits will continue with or without critical habitat designation.

Clean Water Act
Section 404 of the Clean Water Act is the primary Federal law that is relevant to the Oregon spotted frog's aquatic habitat. Through a permit process under section 404, the Corps regulates the discharge of dredged or fill material into waters of the United States, including navigable waters and wetlands that may contain Oregon spotted frogs. However, many actions highly detrimental to Oregon spotted frogs and their habitats, such as irrigation diversion structure construction and maintenance and other activities associated with ongoing farming operations in existing cropped wetlands, are exempt from Clean Water Act requirements.

In Washington and Oregon, current section 404 regulations provide for the issuance of nationwide permits for at least 15 of the 52 categories of activities identified under the nationwide permit program (USACOE 2012a, pp. 1–46), which, for example, could result in the permanent loss of up to 500 ft (150 m) of streambank and 1 acres (0.4 ha) of wetlands (USACOE 2012a, 2012b, 2012c). Projects authorized under a nationwide permit receive minimal public and agency review, and in many cases, agency notification is not required. Individual permits are subject to a more rigorous review, and may be required for nationwide permit activities with more than minimal impacts. Under both the individual and nationwide permit programs, no activities can be authorized if they are likely to directly or indirectly (1) jeopardize the continued existence of a threatened or endangered species, or a species proposed for designation, or (2) destroy or adversely modify the critical habitat of such species, unless section 7 consultation addressing the effects of the proposed activity has been completed. During section 7 consultation, effects to the species itself and aquatic habitat/wetlands would be considered.

For nationwide permits, Corps notification may not be required depending upon the project type and the amount of wetland to be impacted. Impacts to wetlands may be authorized with no compensatory mitigation in some cases. In other cases, wetland impacts may be authorized if the permittee demonstrates the project footprint has been designed to avoid most wetland impacts and unavoidable impacts can be adequately mitigated through wetland creation, restoration, or enhancement. For example, nationwide permits authorize the discharge of fill material into 0.25 acres (0.1 ha) of wetlands with no requirement for compensatory mitigation. In situations where compensatory wetland mitigation is required, in kind mitigation is preferred but not required.

A Washington State wetland mitigation evaluation study (Johnson *et al.* (2002, entire) found a resulting net loss of wetlands with or without compensatory mitigation, because wetland creation and enhancement projects were minimally successful or not successful in implementation nor in achieving their ecologically relevant measures. In Washington, mitigation sites within the South Fork Nooksack, Samish, and Black River sub-basins have been designed to improve water quality by planting trees and shrubs. Some of these activities have been conducted in Oregon spotted frog breeding habitat. Therefore, an activity that fills Oregon spotted frog habitat could be mitigated by restoring and or creating riparian habitat suitable for fish, but which is not

suitable for frogs. In general, most riparian habitat restoration in Washington is targeted toward salmon species and does not include floodplain depression wetlands.

Organic Administration Act

The general provisions of the Organic Administration Act of 1897 (16 U.S.C. 551) authorize the Secretary of Agriculture to designate Research Natural Areas in national forests. Under regulations at 7 CFR 2.60 (a), the Secretary has delegated this authority to the Chief of the USFS, who, pursuant to 36 CFR 251.23, selects and establishes Research Natural Areas as part of the continuing land and resource management planning process for National Forest System lands (36 CFR 219.25 and FSM 1922). Oregon spotted frogs at Gold Lake Bog on the Willamette National Forest are within a designated Research Natural Area. Research Natural Areas are tracts of land formally designated for research, education, and conservation purposes. They are managed by Federal, state, county, city, and private organizations for their natural ecological processes and serve as controls for research studies, baselines for management activities, and living laboratories for education. The sites are permanently protected for long-term study.

National Forest Management Act

The National Forest Management Act (NFMA; (16 USC 1604 (g)(3)(B)) has required the USFS to incorporate standards and guidelines into Land and Resource Management Plans (LRMP), including provisions to support and manage plant and animal communities for diversity and for the long-term, rangewide viability of native species. The USFS adopted a final planning rule (2012 rule, 36 CFR 219) in April 2012 that provides a framework to guide the collaborative and science-based development, amendment, and revision of land management plans. This framework will promote healthy, resilient, diverse, and productive national forests and grasslands with a range of social, economic, and ecological benefits now and for future generations. In the face of changing environmental conditions and stressors, such as a changing climate, the final planning rule requires plans to include plan components to (1) maintain and restore ecosystem and watershed health and resilience (ecological integrity); (2) protect key resources on the unit, including water, air, and soil; and (3) address water quality and riparian area protection and restoration.

The USFS' 2012 rule contains a strong implementation approach to provide for the diversity of plant and animal communities and the persistence of native species in the plan area. This approach requires that plans use a complementary ecosystem and species-specific approach to maintaining the diversity of plant and animal communities and the persistence of native species in the plan area. The intent is to provide the ecological conditions (habitat) necessary to keep common native species common, contribute to the recovery of threatened and endangered species, conserve proposed and candidate species, and maintain viable populations of each species of conservation concern within the plan area. The 2012 rule requires that plans provide the ecological conditions necessary to contribute to the recovery of threatened and endangered species, and to conserve candidate and proposed species. In addition, the requirements for restoration and ecological sustainability are intended to reduce the risk that species will become listed as threatened or endangered in the future.

None of the National Forests within the range of the Oregon spotted frog have completed updates to the LRMPs based on the final 2012 rule. Although existing LRMPs require that the USFS maintain the viability of native species, vegetation management is the primary management activity implemented by the USFS to maintain the species viability. There are five National Forests that have Oregon spotted frogs. Currently, three National Forests in Oregon have implemented four habitat management actions to benefit the Oregon spotted frog, specifically beaver re-introduction and grazing management (see Factor A). While NFMA may provide regulatory protection for Oregon spotted frog habitat, competing multiple uses, limited funding and staffing have resulted in minimal on-the-ground successes and there are threats to Oregon spotted frog on USFS lands such as the presence of non-native predaceous fish that are not managed by the USFS under NFMA. Therefore, the site-specific threats are not being addressed.

Federal Land Policy and Management Act of 1976 (FLPMA)

The BLM is required to incorporate Federal, State, and local input into their management decisions through Federal law. The Federal Land Policy and Management Act of 1976 (FLPMA) (Public Law 94-579, 43 U.S.C. 1701) was written "to establish public land policy; to establish guidelines for its administration; to provide for the management, protection, development and enhancement of the public lands; and for other purposes." Section 102(f) of the FLPMA states that "the Secretary [of the Interior] shall allow an opportunity for public involvement and by regulation shall establish procedures ... to give Federal, State, and local governments and the public, adequate notice and opportunity to comment upon and participate in the formulation of plans and programs relating to the management of the public lands." Therefore, through management plans, the BLM is responsible for including input from Federal, State, and local governments and the public. Additionally, Section 102(c) of the FLPMA states that the Secretary shall "give priority to the designation and protection of areas of critical environmental concern" in the development of plans for public lands. Although the BLM has a multiple-use mandate under the FLPMA which allows for grazing, mining, and off-road vehicle use, the BLM also has the ability under the FLPMA to establish and implement special management areas such as Areas of Critical Environmental Concern, wilderness, research areas, etc., that can reduce or eliminate actions that adversely affect species of concern (including listed species).

FLPMA also specified that "the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use (website FLPMA)."

BLM policy 6840 indicates that the BLM will "conserve and/or recoverAct-listed species and the ecosystems on which they depend so that Act protections are no longer needed for these species". It will also initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the Act (BLM 6840 Policy 2008, p. 0.01). This includes working with the Service and

undertaking active management actions to inventory, monitor, restore, and maintain listed species habitats, among other actions (BLM 6840 Policy 2008, pp. .04D2, .04D8e, 05V).

The Oregon spotted frog occurs on portions of BLM administered lands. Prineville BLM Resource Management Plan (RMP) does not discuss guidelines specific to the management or conservation of the Oregon spotted frog. However, it does place an emphasis on restoring the hydrologic function of watersheds (BLM 2007, p. 40). In addition, it also emphasizes the restoration and maintenance of riparian and aquatic resources (BLM 2007, p. 35). There have been two projects in the Prineville Resource Area that have been completed in historic and currently occupied Oregon spotted frog habitat. The Medford Office RMP and their associated Cascade Siskiyou National Monument (CSNM) RMP does not address the Oregon spotted frog directly. However within this document is an Aquatic Conservation Strategy which tiers to the Northwest Forest Plan (see below) for restoring and maintaining the ecological health of aquatic systems on their lands (BLM 1995 and p. 21; BLM 2008, pp. 58-60). This strategy emphasizes the maintenance and restoration of water quality, hydrologic regimes, in stream flows, species composition, and structural diversity. There have been no management actions implemented in Oregon spotted frog known occupied habitat on the Cascade Siskiyou National Monument. The Klamath Falls Resource Area RMP specific to the Wood River Wetland also does not address the Oregon spotted frog directly, however, it also includes objectives for water quality maintenance and restoration as well as wetland restoration, invasive weed management, and stream channel restoration (BLM 1996, pp. 16-17). There have been several habitat management actions that have been implemented in the Klamath Falls Resource Area's known occupied and adjacent habitat (see Factor A analysis of the proposed listing rule).

Northwest Forest Plan

The Northwest Forest Plan (NWFP) addresses management of USFS and BLM lands within the range of the northern spotted owl. The NWFP includes an Aquatic Conservation Strategy (ACS), consisting of four components: riparian reserves; key watersheds; watershed analysis; and watershed restoration. Riparian reserves include lands of varying widths along streams, lakes, ponds and wetlands where riparian dependent species receive primary emphasis and where standards and guidelines apply. Key watersheds include areas of refugia within watersheds that are important to at-risk fish species and provide high quality water resources. Watershed analysis is a method of conducting analyses that focus on achieving objectives set forth in the ACS. Watershed restoration includes a comprehensive program to restore aquatic ecosystems and habitat that supports fish and aquatic and riparian dependent organisms (USFS and BLM 2004, p. B-12).

Although the ACS does not specifically address Oregon spotted frog habitat needs, it contains objectives for riparian and stream conservation and maintenance that may facilitate conservation of Oregon spotted frog habitat. However, implementation of the ACS, particularly in key watersheds where the management emphasis is at-risk fish species, could conflict with management objectives for Oregon spotted frog. For example, vegetation management in key watersheds may emphasize the need for increased riparian shading to promote cool water temperatures for fish, which is not conducive to vegetation management to promote early seral vegetation conditions characteristic of Oregon spotted frog breeding habitat.

National Wildlife Refuge System Improvement Act of 1997

The National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 668dd *et seq.*) establishes the protection of biodiversity as the primary purpose of the NWR system. This lead to various management actions to benefit the federally listed species including development of Comprehensive Conservation Plans (CCP) on NWRs. CCPs typically set goals and list needed actions to protect and enhance populations of key wildlife species on refuge lands. Currently, Oregon spotted frogs occur on three NWRs: the Black River Unit of the Nisqually NWR and Conboy Lake NWR in Washington, and Klamath Marsh in Oregon. Nisqually and Conboy Lake NWRs do not have completed CCPs.

The Klamath Marsh CCP contains considerations for maintaining or improving local habitat conditions for the benefit of Oregon spotted frogs on the Federal properties including: restoring or maintaining hydrologic regimes, protecting and restoring ephemeral and permanent wetlands, restoring or maintaining open water and early seral vegetation communities, re-evaluating or discontinuing fish stocking practices, development of comprehensive grazing strategies or adaptive management plans where livestock occur in habitat, and working locally and cooperatively to maintain and restore habitat conditions and to monitor the outcomes of management actions for Oregon spotted frog (USFWS 2010, p. 72). CCPs detail program planning levels that are sometimes substantially above current budget allocations, and as such, are primarily used for strategic planning and priority setting; inclusion of a project in a CCP does not guarantee that the project will be implemented. Implementation of the above conservation actions within the CCP could benefit a minimum of 338 breeding individuals. These actions may improve the status of the Oregon spotted frog on the Klamath Marsh NWR system. Current restoration activities to benefit the wetlands at Klamath Marsh NWR have been limited to invasive weed management (D. Mauser, USFWS pers comm 2012).

FEDERAL LAND MANAGEMENT

The following Federal agencies own and manage lands within some of the areas proposed for designation as critical habitat. Their ongoing land management activities are considered part of the baseline because they will provide some benefits to the Oregon spotted with or without critical habitat designation. For those future proposed activities that may affect the Oregon spotted frog or its critical habitat, section 7 consultation has or will occur and may be considered as part of the incremental effects of critical habitat designation (see further discussions that follow).

National Forests and Bureau of Land Management

The following National Forests own and manage lands within the areas proposed for designation as critical habitat: Gifford-Pinchot, Mt. Hood, Willamette, Deschutes, and Fremont-Winema. The following Bureau of Land Management districts own and manage lands within the areas proposed for designation as critical habitat: Prineville, Medford, and Lakeview. See the discussion above concerning FLPMA, NFMA, and the NWFP for management on these lands.

The USFS has completed and continues to work on Oregon spotted frog Site Management Plans that identify threats and management actions to reduce threats at each of the following sites:

Sevenmile, Jack Creek, Buck Lake, Dilman Meadow, Hosmer Lake, Lava and Little Lava Lake, Big Marsh, Odell/Davis Lake, Little Cultus Lake, Mink Lake Basin and Gold Lake. Implementation of management actions is voluntary and dependent upon funding and will likely occur at the District level.

The Deschutes National Forest is proposing to inundate Ryan Ranch meadow, a site that was historically occupied by Oregon spotted frog. The meadow is a historical slough that has not received river water for nearly 100 years due to a man-made levee along the river bank. The USFS proposes to inundate the meadow by lowering a levee and reconstructing channels into the meadow. Nearly 70 acres of wetland will be restored via implementation of the project. Because the project is within 0.25 mile of a known Oregon spotted frog breeding site, it is anticipated that the Ryan Ranch project will reestablish suitable Oregon spotted frog habitat and bolster the populations of frogs in the reach of the Deschutes River that is highly affected by regulated water storage and releases.

The BLM's Klamath Falls Field Office has initiated several habitat restoration projects within their Wood River Wetland property, including installation of water control structures, construction of breeding ponds, and canal restructuring for additional breeding areas. To date, 3,000 acres (1,214 ha) of wetland habitats associated with the Wood River Canal have been restored. However, for reasons unknown, Oregon spotted frogs have not been detected in the restored wetlands, but rather, have only been associated with the canal system (BLM multiple data sources). BLM actively manages the water in the canal during the breeding season to prevent stranding and inundating Oregon spotted frog egg masses.

The Fremont-Winema National Forest, Chemult Ranger District, in the Oregon portion of the Klamath Basin has initiated a project to restore Oregon spotted frog habitat along Jack Creek, which as of 2008, includes the removal of cattle from a portion of the lands owned by the USFS (Gervais 2011 p. 9). In addition, encroaching lodgepole pine (Gervais 2011 pp. 11–12) has been thinned on both USFS and private lands as a result of this project. In cooperation with adjacent private landowners, the USFS recently released seven beavers into the Jack Creek watershed (Simpson 2012, pers. comm.), which is intended to increase the open water and breeding habitat for Oregon spotted frogs. One of the private landowners has also installed log fences to protect three Oregon spotted frog pools, and two off-stream water sources to exclude cattle from riparian areas, and wattle installment (a fabrication of poles interwoven with slender branches) for water retention (Markus 2012, pers. comm.). In addition, in 2009, the USFS installed fences at Buck Meadow to control grazing on the USFS lands (Lerum 2012, p. 18). Currently, the USFS is discussing restoration actions that include fixing a headcut in Jack Creek which separates two breeding populations as well as creating off stream breeding habitats in the current breeding areas. The long-term benefits of the USFS efforts are unknown at this time; however, these actions were completed to specifically ameliorate threats to the Oregon spotted frog's habitat.

The Deschutes National Forest has closed perimeter ditches at Big Marsh, where past drainage and grazing had led to degradation of the marsh. The Mt. Hood National Forest has fenced sections of Camas Prairie and restricted excessive grazing of the meadow. Implementation of these conservation actions is assumed to have resulted in increased breeding success of Oregon spotted frogs at these locations. In addition, BLM's Prineville District Office recently completed

encroachment removal projects and repairs to headcuts in systems that have had historically or currently have Oregon spotted frogs. Headcutting is a process of active erosion in a channel caused by an abrupt change in slope. Turbulence in the water undercuts substrate material resulting in collapse of the upper level. This under-cut-collapse process advances up the stream channel. The results of BLM's efforts are unknown at this time; however, they were completed specifically to ameliorate threats to Oregon spotted frog habitat.

In 2010, the Fremont-Winema National Forests, Lakeview District of the BLM, Medford District of the BLM, Klamath Marsh NWR, and the Service's Klamath Falls Fish and Wildlife Office signed a Conservation Agreement agreeing to work locally and cooperatively to protect and contribute to the conservation of the Oregon spotted frog by implementing conservation actions for the species and its habitat on federal lands in the Klamath Basin of Oregon. The Conservation Agreement documented numerous actions that the agencies intended to use as a guide for the 1) management of occupied habitat in a manner that sustains and/or restores its ability to support Oregon spotted frog populations; 2) stabilization or growth of populations within the Klamath Basin; 3) reduction of threats; and 4) to increase distribution among available suitable habitats by restoring or creating habitat.

Actions identified include, but are not limited to, the development of Oregon Spotted Frog Site Management Plans for each Oregon spotted frog population on federal lands within the Klamath Basin; the identification and prioritization of research needs for the conservation of the species in the Klamath Basin including annual surveys and reporting of data; the evaluation of connectivity concerns between sites in the Klamath Basin; restoration or enhancement of Oregon spotted frog habitat; and addressing threats to the species and its habitat, including adaptive management of grazing in Oregon spotted frog habitat and local fish stocking practices on Federal lands. Additional actions include annual coordination meetings, sharing of all new information with all parties, working with private landowners, and completing outreach to increase awareness of Oregon Spotted frog management and conservation needs. This Conservation Agreement was not intended as a decision document or a formal direction for the federal agencies. Rather, it was intended to guide strategic planning, project development, management, conservation actions, and research studies for Oregon spotted frog in the Klamath Basin.

U.S. Fish and Wildlife Service

The following National Wildlife Refuges (NWR) own and manage lands within the areas proposed for designation as critical habitat: Nisqually – Black River Unit, Conboy Lake, and Klamath Marsh.

In Washington, some reed canarygrass management is taking place on NWR lands in Units 4 (Nisqually NWR) and 6 (Conboy Lake). These management techniques include mowing and cattle grazing. However, these management techniques are not widespread at any one location or adequate to prevent loss of egg-laying habitat. Conboy Lake NWR in Washington has completed several wetland restoration projects to restore natural hydrological processes to portions of the refuge. This enabled the NWR to maintain independent water management of several wetlands, regardless of the water-related impacts of local landowners. However, under current management, water is not retained throughout the year on most of the NWR and adjacent

private wetlands, and many of these areas that had Oregon spotted frogs in the late 1990s no longer have Oregon spotted frogs.

Only the Klamath Marsh NWR has a completed Comprehensive Conservation Plan (CCP). The CCP for Klamath Marsh NWR includes conservation actions for maintaining or improving local habitat conditions for the benefit of Oregon spotted frogs on NWR property. These include: restoring or maintaining hydrologic regimes, protecting and restoring ephemeral and permanent wetlands, restoring or maintaining open water and early seral vegetation communities, reevaluating or discontinuing fish stocking practices, development of comprehensive grazing strategies or adaptive management plans where livestock occur in habitat, and working locally and cooperatively to maintain and restore habitat conditions and to monitor the outcomes of management actions for Oregon spotted frog (USFWS 2010, p. 72). The CCPs detail program planning levels that are sometimes substantially above current budget allocations and are primarily used for strategic planning and priority setting, thus inclusion of a project in a CCP does not guarantee that the project will be implemented. However, implementation of the above conservation actions within the CCP could benefit a minimum of 338 breeding individuals. These actions are expected to improve the status of the Oregon spotted frog on the Klamath Marsh NWR if adequate budget allocations are provided and the projects are implemented. Existing wetland restoration activities at Klamath Marsh NWR have been limited to invasive weed management (Mauser 2012, pers. comm.). For additional information regarding conservation efforts on Klamath Marsh NWR, see the section above regarding the Klamath Basin Conservation Agreement.

The Partners for Fish and Wildlife program is the U.S. Fish and Wildlife Service's premier program for voluntary, citizen, and community-based fish and wildlife habitat restoration activities. The Partners program assists owners and managers of private lands to develop partnerships for the benefit of Service trust species. Since 1994, in the Oregon portion of the Klamath Basin, the Service's Partners for Fish and Wildlife Program, in collaboration with private landowners, has restored approximately 8,832 acres (3,568 ha) of wetlands adjacent to Upper Klamath Lake. Several habitat restoration projects are under way in known occupied areas including Crane Creek, Sevenmile Creek, Jack Creek, and the Upper Williamson River. Restoration projects include re-channelizing creeks and rivers to provide breeding and rearing habitat, construction of breeding ponds, construction of riparian fences to exclude cattle, and the installation of alternate water sources.

Other Federal Agencies

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS), maintains voluntary agreements with private landowners to apply pesticides within the United States. Based on their 2010 Operational Procedures, all water bodies (rivers, ponds, reservoirs, streams, vernal pools, wetlands, etc.) will be avoided by a minimum of a 50-foot buffer for ground application of bait, a 200-foot buffer for aerial application of bait, and a 500-foot buffer for the aerial application of liquids (USDA APHIS 2010 Treatment Guidelines, p. 4). As previously described under other threat factors, conservation efforts may also help reduce the threat of other natural or manmade factors affecting the species.

The United States Department of Agriculture's NRCS and FSA have several voluntary programs, including the Wetland Reserve Program (WRP), Conservation Reserve Enhancement Program (CREP), Environmental Quality Incentives Program (EQIP), Conservation Stewardship Program (CSP), and Wildlife Habitat Incentive Program (WHIP). All of these are voluntary programs designed to help landowners address concerns regarding the use of natural resources and promote landowner conservation. Under the WRP, landowners enter into a voluntary agreement with NRCS to protect, restore, and enhance wetlands on their property. Various enrollment options are available to landowners, including Permanent Easements, 30-Year Easements, Restoration Cost-Share Agreements, or 30-Year Contracts (USDA NRCS 2013). Under the CREP, the FSA provides payments to landowners who sign a contract committing to keeping lands out of agricultural production for a period of 10 to 15 years. NRCS produces technical guidelines generally aimed at improving soil conditions, agricultural productivity, and water quality, which generally do not result in specific conservation measures for the protection of the Oregon spotted frog. Rather, restoration actions include planting trees and shrubs in riparian areas and removal of grazing.

These activities have had unforeseen consequences to Oregon spotted frog habitat by degrading breeding habitat because, as discussed above, tree- and shrub-dominated communities are unsuitable for Oregon spotted frog breeding. In Washington, this is known to have occurred within the last 10 years at breeding locations in Black, Samish, and South Fork Nooksack Rivers (USFWS Nisqually NWR; Bohannon et al. 2012) and may be happening elsewhere. We are aware of at least one CREP contract in the South Fork Nooksack River sub-basin (Unit 2) that resulted in conifer tree plantings in Oregon spotted frog breeding locations which resulted in the wetted areas becoming drier and mostly shaded.

In both Oregon and Washington, under the WRP, NRCS can authorize vegetation management activities, such as mowing, haying, and grazing under a Compatible Use Authorization. Also, in Oregon, the Wetland Reserve Enhancement Program currently offers the Reserved Rights Pilot Program, under which grazing rights are a reserved right which the landowner maintains.

In Oregon, two known occupied private land parcels (Unit 13) have been entered into a WRP or a CREP agreement in the Klamath Basin. The WRP agreement allows no grazing in perpetuity, which in the long term, may result in reduced quality of Oregon spotted frog habitat while the CREP restricts grazing for a minimum of 15 years and requires riparian tree plantings. In addition, NRCS is working with The Nature Conservancy to purchase and restore wetland habitat adjacent to occupied Oregon spotted frog habitat (Unit 13). This property is also being placed in a WRP with no grazing authorized. However, NRCS is currently working with a private landowner to enter into a WRP which allows grazing in marsh habitat as needed (Unit 12). The Service has had preliminary discussions with NRCS and is working with the agency to address this management issue.

Tribal Regulations

There are no Tribally-owned lands included in the proposed critical habitat.

State Wildlife Laws
The following wildlife laws by the states where the Oregon spotted frog occurs provide some benefits to the Oregon spotted frog and are considered part of the baseline because these benefits will continue with or without critical habitat designation.

Washington— Although there is no State Endangered Species Act in Washington, the Washington Fish and Wildlife Commission has the authority to list species (RCW 77.12.020). State-listed species are protected from direct take, but their habitat is not protected (RCW 77.15.120). The Oregon spotted frog was listed as a State endangered species in Washington in August 1997 (Watson *et al.* 1998, p. 1; 2003, p. 292; WAC 232–12–014). State listings generally consider only the status of the species within the State's borders, and do not depend upon the same considerations as a potential Federal listing. Unoccupied or unsurveyed habitat is not protected unless by County ordinances or other similar rules or laws.

The Oregon spotted frog is a Priority Species under WDFW' Priority Habitats and Species Program (WDFW 2008, pp. 68). As a Priority Species, the Oregon spotted frog may receive some protection of its habitat under environmental reviews of applications for county or municipal development permits and through implementation of Priority Habitats and Species management recommendations. Priority Habitat and Species Management Recommendations for this species include maintaining stable water levels and natural flow rates; maintaining vegetation along stream banks or pond edges; avoidance of introducing nonnative amphibians, reptiles, or fish; avoidance of removing algae from rearing areas; avoiding alteration of muddy substrates; controlling stormwater runoff away from frog habitat; avoiding application of pesticides in or adjacent to water bodies used by Oregon spotted frogs; and surveying within the historical range of the species (Nordstrom and Milner 1997, pp. 6-5–6-6).

The Clean Water Act of 1972 requires States to set water quality standards to protect beneficial uses, identify sources of pollution in waters that fail to meet State water quality standards (Section 303(d)), and to develop water quality plans to address those pollutants. Although the Clean Water Act is a Federal law, authority for implementing this law has been delegated to the State. Washington State adopted revised water quality standards for temperature and intergravel dissolved oxygen in December 2006, and the Environmental Protection Agency (EPA) approved these revised standards in February 2008 (EPA 2008). Although candidate species were not the focus, proponents believed that the proposed standards would likely protect native aquatic species. The temperature standards are intended to restore thermal regimes to protect sensitive native salmonids, and, if temperature is not a limiting factor in sustaining viable salmonid populations, other native species would likely be protected (EPA 2007, p. 14).

The State has developed water quality plans for the Lower Nooksack, Samish, and Upper Chehalis Rivers; however, as of 2008 (most recent freshwater listing), portions of the Sumas River; Black Slough in the S.F. Nooksack River sub-basin; portions of the Samish River; segments of the Black River; segments of Dempsey, Allen, and Beaver Creeks in the Black River drainage, and a segment in the upper portion of Trout Lake Creek were listed by the Washington Department of Ecology (WDOE) as not meeting water quality standards for a variety of parameters, including temperature, fecal coliform, pH, and dissolved oxygen. In addition, for the streams/rivers where the temperature or fecal coliform standard is exceeded, the

water quality plans call for planting trees and shrubs and excluding cattle, which would not be conducive to the creation and maintenance of early seral stage conditions (i.e., emergent vegetation) necessary for Oregon spotted frog egg-laying habitat.

The Washington Shoreline Management Act's purpose is "to prevent the inherent harm in an uncoordinated and piecemeal development of the State's shorelines." Shorelines are defined as: all marine waters; streams and rivers with greater than 20 cfs (0.6 cms) mean annual flow; lakes 20 acres or larger; upland areas called shorelands that extend 200 ft (61 m) landward from the edge of these waters; and the following areas when they are associated with one of the previous shorelines: biological wetlands and river deltas, and some or all of the 100-year floodplain, including all wetlands within the 100-year floodplain. Each city and county with "shorelines of the state" must prepare and adopt a Shoreline Master Program (SMP) that is based on State laws and rules but is tailored to the specific geographic, economic, and environmental needs of the community. The local SMP is essentially a shoreline-specific combined comprehensive plan, zoning ordinance, and development permit system.

The Washington State Growth Management Act of 1990 requires all jurisdictions in the State to designate and protect critical areas. The State defines five broad categories of critical areas, including (a) wetlands; (b) areas with a critical recharging effect on aquifers used for potable water; (c) fish and wildlife habitat conservation areas; (d) frequently flooded areas; and (e) geologically hazardous areas. The County Area Ordinance (CAO) is the county regulation that most directly addresses protection of the critical areas mapped by each county.

Frequently, local government will have adopted zoning regulations and comprehensive land use plans that apply both within and outside shoreline areas. When these codes are applied within the shoreline area, there may be differences in the zoning regulations and the plan policies as compared with the regulations and policies of the SMP. Because the SMP is technically a State law (i.e., WAC), the requirements of the SMP will prevail in the event of a conflict with the local zoning or plan. Generally, however, a conflict will not exist if the zoning or plan requirements are more protective of the shoreline environment than the SMP. For example, if the zoning district allows a density of one unit per acre, and the SMP allows a density of two units per, the requirements of the more restrictive code would prevail.

Within each county in Washington, the SMP and CAO are the regulations that most directly address protection of Oregon spotted frog habitat. A brief discussion of the current SMPs and CAOs for the five counties where Oregon spotted frogs are known to occur follows.

Whatcom County: Whatcom County updated its Shoreline Management Program in 2008. Based on interpretation of the 2008 SMP, the known Oregon spotted frog occupied locations in the Lower Chilliwack or South Fork Nooksack River sub-basins are not "shorelines." Samish River within Whatcom County is designated as Conservancy Shoreline that provides specific allowed uses and setbacks. Presently, the two primary uses of this area are agricultural and residential, both of which are allowed under the SMP, with some restrictions. Restrictions include shoreline setbacks of 15–20 ft (4.5–6.1 m) and allowance of no more than 10 percent impervious surface (although it is uncertain whether this is applicable on a per-project, per-acre, or per-basin basis). One of the allowed uses is restoration, which is focused on recovery of

salmon and bull trout. Many of the restoration actions targeting salmon and bull trout recovery are not conducive to maintaining early seral vegetation stages necessary to maintain Oregon spotted frog egg-laying habitat. Some activities would require a permit that must be reviewed and approved by Whatcom County and the WDOE for consistency.

The Whatcom County CAO that is the most relevant to Oregon spotted frogs applies to wetland areas, which are present in the three sub-basins where Oregon spotted frogs occur in this county. Activities in all wetlands are regulated unless the wetland is 1/10 acres or smaller in size; however, activities that can destroy or modify Oregon spotted frog habitat can still occur under the existing CAO. Activities that are conditionally allowed include surface water discharge; storm water management facilities; storm water conveyance or discharge facilities; public roads, bridges, and trails; single-family developments; and onsite sewage disposal systems. Buffers and mitigation are required, but can be adjusted by the county. In general, wetlands and the associated wetland buffer CAOs target an avoidance strategy, which may not be beneficial to the maintenance of Oregon spotted frog early seral stage habitat on a long-term basis in areas where reed canarygrass is present. Within the areas occupied by Oregon spotted frogs in the three sub-basins, all egg-laying habitat is within seasonally flooded areas, which may or may not be defined as wetlands. Rather than an avoidance strategy, these areas may require management actions to remove reed canarygrass in order to maintain egg-laying habitat and provide for Oregon spotted frog persistence. Within Whatcom County, protective measures for Oregon spotted frogs are afforded under both the SMP and the CAOs, although no measures are specifically directed toward this species.

Skagit County: Skagit County's revisions to its SMP were under review and anticipated to be adopted by June 2013 (*www.skagitcounty.net*). Until the revised SMP is approved by WDOE, the 1976 SMP remains in effect. The portion of the Samish River in Skagit County is designated as Rural Shoreline Area, and typified by low overall structural density, and low to moderate intensity of agriculture, residential development, outdoor recreation, and forestry operations uses. This designation is intended to maintain open spaces and opportunities for recreational activities and a variety of uses compatible with agriculture and the shoreline environment. Presently, the two primary uses of the Samish River where Oregon spotted frogs occur are agricultural and residential. With some restrictions, almost all activities are allowed within this designation, and the draining of wetlands is not prohibited. Agricultural users are encouraged to retain vegetation along stream banks. Developments and sand and gravel extractions are allowed provided they are compatible with agricultural uses. These types of activities can be detrimental to Oregon spotted frog egg-laying habitat.

The Skagit County CAO designates lands adjacent to the Samish River where Oregon spotted frogs are known to occur as Rural Resource or Agricultural. These land designations and the associated allowed activities are intended to provide some protection of hydrological functions, but they are primarily designed to retain a rural setting (low residential density) or to ensure the stability and productivity of agriculture and forestry in the county, which has some benefits to the Oregon spotted frog.

Thurston County: Thurston County's revision of its SMP is currently under way, and until the revised SMP is completed and approved, the 1990 SMP remains in effect. The majority of the

areas within the Black River that are known to be occupied by Oregon spotted frogs are either undesignated (primarily the tributaries) or designated as Natural or Conservancy Environments. Two small areas are designated as Urban at the town of Littlerock and along Beaver Creek. Fish Pond Creek, a known Oregon spotted frog breeding location, is within the designated Urban Growth Area. Within the Natural Environment designation areas, most activity types are prohibited, although livestock grazing, low-intensity recreation, low-density (1/10 ac) residences, and conditional shoreline alterations are allowed. Within Conservancy Environments, most activities are conditionally allowed, and would require a permit that must be reviewed and approved by Thurston County and WDOE for consistency with the SMP.

Thurston County approved a revision to the CAO in July 2012. The Thurston County CAO that is the most relevant to Oregon spotted frogs addresses wetlands, although the 100-year floodplain and Channel Migration Zone designations are also applicable. Activities in most wetlands are regulated, other than those less than or equal to 1,000 square feet in size. As a result, activities that can destroy or modify Oregon spotted frog habitat may still occur, such as asphalt batch plant construction, new agricultural uses, boat ramps, docks, piers, floats, bridge or culvert projects, clearing-grading-excavation activities, and dredging/removal operations. Buffers and mitigation are required, but can be adjusted by the county. In general, wetlands and the associated wetland buffer CAOs strive toward a no-management approach, which may not be beneficial to the maintenance of Oregon spotted frog early seral stage habitat on a long-term basis. Within the areas occupied by Oregon spotted frogs in the Black River, all egg-laying habitat is within seasonally flooded areas, which may or may not be defined as wetlands. Rather than an avoidance strategy, these areas may require management actions to remove reed canarygrass in order to maintain egg-laying habitat. Within Thurston County, protective measures for Oregon spotted frogs are afforded under both the SMP and CAOs, although no measures are specifically directed toward this species.

Skamania County: Skamania County's revision to its SMP is under way, and until revised, the 1980 SMP is in effect. According to the 1980 SMP, Trout Lake Creek is not a shoreline of Skamania County. The portions of Trout Lake Creek that are in Skamania County have no designated critical areas. Therefore, the SMP and CAO are not applicable to Oregon spotted frog habitat in Skamania County.

Klickitat County: Klickitat County's SMP was adopted in 1998 and revised in 2007. Based on the 2007 SMP, only Trout Lake Creek is considered a "shoreline," and within the area occupied by Oregon spotted frogs, regulations for both Natural and Conservancy Environments apply. Within the Natural Environments, most activity types are prohibited, except for nonintensive pasturing or grazing, recreation (access trails/passive uses), bulkheads (conditional uses), and shoreline alterations (conditional). Within Conservancy Environments, most activities are conditionally allowed, and require a permit that must be reviewed and approved by Klickitat County and WDOE for consistency.

Klickitat County's CAO was adopted in 2001 and amended in 2004. Mapping of critical areas was not available, so our analysis includes only wetlands provisions. Activities in all wetlands greater than 2,500 square ft (232 square m) in size are regulated; however, some activities are exempted, including agricultural uses and maintenance of surface water systems (for example,

irrigation and drainage ditches). These types of activities can destroy or modify Oregon spotted frog habitat. Buffers and mitigation are required, but can be adjusted by the county. In general, wetlands and the associated wetland buffer CAOs strive toward a no-management approach, which may result in the loss of Oregon spotted frog early seral stage habitat on a long-term basis. Within the areas occupied by Oregon spotted frogs in Klickitat County, all egg-laying habitat is within seasonally flooded areas, which may or may not be defined as wetlands. Rather than an avoidance strategy, these areas may require management actions to remove reed canarygrass in order to maintain egg-laying habitat. Within Klickitat County, protective measures for Oregon spotted frogs are afforded under both the SMP and CAOs, although no measures are specifically directed toward this species.

Oregon—Oregon has a State Endangered Species Act, but the Oregon spotted frog is not State listed. Although this species is on the Oregon sensitive species list and is considered critically sensitive, this designation provides little protection (ODFW 1996, OAR 635–100–0040). Once an Oregon "native wildlife" species is federally listed as threatened or endangered, it is included as a State-listed species and receives some protection and management, primarily on State owned or managed lands (OAR 635–100–0100 to OAR 635–100–0180; ORS 496.171 to ORS 496.192).

Although the Clean Water Act is a Federal law, authority for implementing this law has been delegated to the State. Oregon adopted revised water quality standards for temperature, intergravel dissolved oxygen, and anti-degradation in December 2003, and EPA approved these revised standards in March 2004 (EPA 2004). Although candidate species were not the focus, it was believed that the proposed standards would likely protect native aquatic species. The proposed temperature standards are intended to restore thermal regimes to protect sensitive native salmonids and, if temperature is not a limiting factor in sustaining viable salmonid populations, other native species would likely be protected (EPA 2004). In December 2012, EPA approved additions to Oregon's 303(d) list, which includes waterbodies that do not meet water quality standards for multiple parameters (ODEQ 2012). Many of the streams associated with Oregon spotted frog habitat are 303(d) listed by the Oregon Department of Environmental Quality (see Factor E).

Oregon's Removal-Fill Law (ORS 196.795-990) requires people who plan to remove or fill material in waters of the State to obtain a permit from the Department of State Lands (DSL). Wetlands and waterways in Oregon are protected by both State and Federal laws. Projects impacting waters often require both a State removal-fill permit, issued by the DSL, and a Federal permit issued by the Corps. A permit is required only if 50 cubic yards (cy) or more of fill or removal will occur. The removal fill law does not regulate the draining of wetlands (see Local Laws and Regulations below).

In Oregon, the Land Conservation and Development Commission in 1974 adopted Goal 5 as a broad statewide planning goal that covers more than a dozen resources, including wildlife habitats and natural areas. Goal 5 and related Oregon Administrative Rules (Chapter 660, Divisions 16 and 23) describe how cities and counties are to plan and zone land to conserve resources listed in the goal. Goal 5 is a required planning process that allows local governments to make decisions about land use regulations and whether to protect the individual resources based upon potential conflicts involving economic, social, environmental, and energy

consequences. It does not require minimum levels of protections for natural resources, but does require weighing the various impacts to resources from land use.

Counties in Oregon within the range of Oregon spotted frog may have zoning ordinances that reflect protections set forth during the Goal 5 planning process. The following will briefly discuss these within each county where Oregon spotted frogs are currently known to occur.

Deschutes County: In accordance with the State-wide planning process discussed above (State Regulations and Laws –*Oregon*), Deschutes County completed a Comprehensive Plan in 1979, which was updated in 2011, although Oregon spotted frog habitat is not included within the Comprehensive Plan as a Goal 5 resource site. The Comprehensive Plan is implemented primarily through zoning. Deschutes County zoning ordinances that regulate the removal and fill of wetlands (18.128.270), development within the floodplain (18.96.100) and siting of structures within 100 ft (30 m) of streams may provide indirect protections to Oregon spotted frog habitat on private lands along the Upper and Little Deschutes Rivers. The Deschutes County zoning regulations do not regulate the draining of wetlands or hydrologic modifications, and the Oregon DSL regulates only actions that involve more than 50 cubic yards (cy) (38 m^3) of wetland removal. Therefore, development associated with small wetland removals is neither regulated under the Deschutes County Comprehensive Plan nor Oregon DSL (See DSL discussion above), which could negatively impact Oregon spotted frog habitat.

Klamath County: Article 57 of the Klamath County Comprehensive Plan Policy (KCCPP) and associated Klamath County Development Code mandates provisions to preserve significant natural and cultural resources; address the economic, social, environmental, and energy consequences of conflicting uses upon significant natural and cultural resources; and permit development in a manner that does not adversely impact identified resource values (KCDC 2005, p. 197). This plan identifies significant wetlands, riparian areas, Class I streams, and fish habitat as a significant resource and identifies potentially conflicting uses including shoreline development or alteration, removal of riparian vegetation, filling or removing material, in-stream modification, introduction of pollutants, water impoundments, and drainage or channelization (KCCPP 2005, pp. 33–34, KCDC 2005, p. 199). All land uses that represent these conflicting uses are reviewed and applicants must clearly demonstrate that the proposed use will not negatively impact the resource (KCDC 2005, p. 200; KCCPP 2005, p. 25). However, all accepted farm practices or forest practices are exempt from this provision (KCDC 2005, p. 198), including (but not limited to) buildings, wineries, mineral exploration, and under certain circumstances, the establishment of golf courses and agricultural and commercial industries (KCDC 2005, pp. 160–163; 176–177). If any of these practices disturb less than 50 cy (38.2 m^3) of wetlands, they are not regulated by either KCCPP or Oregon DSL (See DSL discussion above). Therefore, the development associated with small wetland removals could negatively impact Oregon spotted frog habitat.

Jackson County: No specific county regulations pertain to wetlands within Jackson County ordinances. This county relies on the Oregon DSL to regulate the development and protection of wetlands (see DSL discussion above) (Skyles 2012, pers. comm.).

Federal agencies and other project proponents that are likely to consult with the Service under section 7 absent the critical habitat designation

In the baseline scenario, section 7 of the Act requires Federal agencies to consult with the Service to ensure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of the Oregon spotted frog. Some of the Federal agencies and projects that may be subject to the section 7 consultation process whether or not critical habitat is designated include, but may not be limited to, the following:

- U.S. Army Corps of Engineers – nationwide permitting, projects requiring permits under section 404 of the Clean Water Act.
- U.S. Department of Energy and Bonneville Power Administration - renewable and alternative energy projects and maintenance activities along right-of-way corridors.
- U.S. Department of Agriculture Rural Development – federally funded construction projects, rural development and facility upgrades.
- Farm Service Agency and Natural Resource Conservation Service – Federal funding and technical assistance to farmers for agricultural activities.
- U.S. Department of Transportation - highway and bridge construction and maintenance.
- U.S. Fish and Wildlife Service - habitat restoration activities, issuance of section 10 permits for enhancement of survival, habitat conservation plans, safe harbor agreements, Partners for Fish and Wildlife program projects.
- U.S. Forest Service and Bureau of Land Management - grazing and forestry activities, nonnative species control, campground/trail maintenance, aquatic habitat restoration, and rock quarries.
- Environmental Protection Agency - water quality criteria, permitting.
- Bureau of Reclamation – activities and infrastructure associated with water storage and delivery.
- U.S. Department of Agriculture Animal and Plant Health Inspection Services-protecting and promoting U.S. agriculture via pesticide applications and beaver removal (through Wildlife Services).

Types of Activities Potentially Subject to Section 7 Consultation

A project proposed, funded, or authorized by a Federal agency, that may affect critical habitat, would require section 7 consultation. Provided that the habitat is not destroyed permanently (e.g., through development), many habitat-related impacts would be considered temporary. The Oregon spotted frog is the most aquatic native frog species in the Pacific Northwest. It is almost

always found in or near a perennial body of water, such as a spring, pond, lake, sluggish stream, irrigation-type canal, or roadside ditch. For completion of its life cycle, Oregon spotted frogs require shallow, stable water areas (may be seasonal water) for egg and tadpole survival and development; perennial deep moderately-vegetated pools for adult and juvenile survival in the dry season; and perennial water overlaying emergent vegetation for protecting all age classes during cold wet weather. Oregon spotted frog habitat is generally described as expansive meadow/wetland with a continuum of vegetation densities along edges and in pools, and an absence of introduced predators. These habitats are maintained through frequent disturbance, are seasonally dynamic, and are improved by activities that result in the removal or control of invasive and/or woody vegetation. If the impacts of a Federal action to a critical habitat unit are minor or temporary in nature, the action may not significantly reduce the habitat's ability to support essential behaviors, and would not be likely to result in a finding of destruction or adverse modification. However, activities could result in destruction or adverse modification of critical habitat if they significantly affect the ability of the critical habitat designation (in its entirety) to maintain its conservation role and function. This could occur if Federal actions result in a significant and permanent loss of habitat and long-term habitat degradation (e.g., lack of maintenance that would allow invasive nonnative plants to spread; allowing or promoting succession of woody vegetation; draining, filling, or excavation of wetlands or other water areas; significant water withdrawals from perennial waterbodies; release of chemical or biological pollutants in or adjacent to critical habitat that can alter water quality). These actions may require concurrent jeopardy and adverse modification analyses depending on the nature and timing of the projects or activities

If formal section 7 consultation were to result in a finding of destruction or adverse modification of critical habitat, the Service would be required to recommend reasonable and prudent alternatives to the Federal agency. Reasonable and prudent alternatives (RPAs) are alternative actions identified during formal consultation that: (1) can be implemented in a manner consistent with the intended purpose of the action; (2) are consistent with the scope of the Federal agency's legal authority and jurisdiction; (3) are economically and technologically feasible; and (4) would avoid the likelihood of an action resulting in the destruction or adverse modification of critical habitat. The Service is also required to identify RPAs if a Federal action is likely to jeopardize the continued existence of the Oregon spotted frog (i.e., the action would reasonably be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (see 50 CFR 402.02)).

The types of activities that currently occur and are likely to continue within proposed critical habitat include livestock grazing, agricultural operations, removal/treatment of riparian or wetland vegetation, and water management. In cases where the effects of these types of activities would be temporary, the outcome of section 7 consultation would likely recommend they be conducted during the time of year when the Oregon spotted frog is not present, or when they are less vulnerable to disturbance. However, activities could result in long term or permanent impacts if they significantly modify the structure and function of Oregon spotted frog habitat, including negative impacts to the morphology, geometry or water availability/permanence in wetlands, ponds, channels, lakes, oxbows, springs, or seasonally-flooded habitat areas.

Activities that may affect critical habitat, when carried out, funded, or authorized by a Federal agency, should result in consultation for the Oregon spotted frog, including Federal actions that occur outside of critical habitat that impact physical or biological features within critical habitat. 50 C.F.R. 402.02 defines the "action area" as all areas to be affected directly or indirectly by the Federal action, and not merely the immediate area involved in the action. These activities include, but are not limited to:

(1) Actions that would significantly alter the structure and function of the wetland, pond, channel, lake, oxbow, spring, or seasonally-flooded areas morphology, geometry, or water availability/permanence. Such actions or activities could include, but are not limited to:

(1) Filling or excavation; channelization; impoundment;
(2) road and bridge construction; urban, agricultural, or recreational development;
(3) mining;
(4) groundwater pumping;
(5) dredging;
(6) construction or destruction of dams or impoundments;
(7) water diversion;
(8) water withdrawal;
(9) hydropower generation;
(10) livestock grazing;
(11) beaver removal;
(12) destruction of riparian or wetland vegetation;
(13) pond construction; and
(14) river restoration, including channel reconstruction, placement of large woody debris, vegetation planting, reconnecting riverine floodplain, or gravel placement.

These activities may lead to changes in the hydrologic function of the aquatic habitat and alter the timing, duration, water flows, and water depth. These changes may be designed to be beneficial to the Oregon spotted frog and actually increase habitat in the long term or may degrade or eliminate Oregon spotted frog habitat and could lead to the reduction in available breeding, rearing, non-breeding, and overwintering habitat necessary for the frog to complete its life cycle. If the permanence of an aquatic system declines so that it regularly dries up, it may lose its ability to support Oregon spotted frogs. If the quantity of water declines, it may reduce the likelihood that the site will support a population of frogs that is robust enough to be viable over time. Similarly, ephemeral, intermittent, or perennial ponds can be important stop-over points for frogs moving among breeding areas or between breeding, rearing, dry season, or wintering areas. Reducing the permanence of these sites may reduce their ability to facilitate frog movements. However, in some cases, increasing permanence can be detrimental as well, if it creates favorable habitat for predatory fish or bullfrogs that otherwise could not exist in the system.

(2) Actions that would significantly alter the vegetation structure in and around habitat. Such actions or activities could include, but are not limited to, removing, cutting, burning, or planting vegetation for restoration actions, creation or maintenance of urban or recreational developments, agricultural activities, and grazing. The alteration of the vegetation structure may

change the habitat characteristics by changing the microhabitat (e.g., change in temperature, water depth, basking opportunities, and cover) and thereby negatively affect whether the Oregon spotted frog is able to complete all normal behaviors and necessary life functions or may allow invasion of competitors or predators.

(3) Actions that would significantly degrade water quality (for example, alter water chemistry or temperature). Such actions or activities could include, but are not limited to, release of chemicals or biological pollutants into surface water or into connected ground water at a point source or by dispersed release (non-point source); livestock grazing that results in sedimentation, urine, or feces in surface water; runoff from agricultural fields; and application of pesticides (including aerial overspray). These actions could adversely affect the ability of the habitat to support survival and reproduction of Oregon spotted frogs. Variances in water chemistry or temperature could also affect the frog's ability to survive with Bd, oomycete water mold *Saprolegnia*, or *Ribeiroia*.

(4) Actions that would directly or indirectly result in introduction of nonnative predators, increase the abundance of extant predators, or introduce disease. Such actions could include, but are not limited to: introduction or stocking of fish or bullfrogs; water diversions, canals, or other water conveyance that moves water from one place to another and through which inadvertent transport of predators into Oregon spotted frog habitat may occur; and movement of water, mud, wet equipment, or vehicles from one aquatic site to another, through which inadvertent transport of eggs, tadpoles, or pathogens may occur. These actions could adversely affect the ability of the habitat to support survival and reproduction of Oregon spotted frogs. Additionally, the stocking of introduced fishes could prevent or preclude recolonization of otherwise available breeding or overwintering habitats, which are necessary for the conservation of Oregon spotted frogs.

(5) Actions and structures that would physically block aquatic movement corridors. Such actions and structures include, but are not limited to: urban, industrial, or agricultural development; water diversions (such as dams, canals, pipes); water bodies stocked with predatory fishes or bullfrogs; roads that do not include culverts; or other structures that physically block movement. These actions and structures could reduce or eliminate immigration and emigration within a sub-basin.

(6) Inclusion of lands in conservation agreements or easements that result in any of the actions discussed above. Such easements could include, but are not limited to NRCS Wetland Reserve Program, USDA Farm Service Agency's Conservation Reserve and Conservation Reserve Enhancement Programs, Habitat Conservation Plans(HCP), Safe Harbor Agreements (SHA), or Candidate Conservation Agreements with Assurances. Agricultural and grazing activities can pose a serious threat to Oregon spotted frog, however, some of these activities, depending on level of treatment and seasonality, can also be beneficial because they contribute to maintaining and improving habitat conditions. All of the critical habitat units for the Oregon spotted frog would require some degree of ongoing vegetation management. Without regular removal of reed canary grass or colonizing woody vegetation and trees within or immediately adjacent to wetland areas used for oviposition, areas would quickly become overgrown and unsuitable for the Oregon spotted frog.

Some of the critical habitat units for the Oregon spotted frog (units 5, 6, 7, 8, 10, 11, 12 and 13) are located in areas or contain substantial properties where the risk of permanent site conversion, development, or complete loss of habitat is low. However, aspects of the Oregon spotted frog's life history still make it particularly vulnerable to habitat alterations. For example: (1) there are a restricted number of communal egg-laying locations that are used on an annual basis; (2) the species' warm water microhabitat requirement results in habitat overlap with introduced warm water fish species (e.g., bass) and other warm water fauna which prey on Oregon spotted frogs (e.g., bullfrogs); (3) warm water in the cool climate of the Pacific Northwest limits the availability of warmwater suitable habitat, a requirement in the active season; (4) the species is vulnerable to the potential loss or alteration of springs used for overwintering; and (5) their habitat requirements (e.g., spatial structure) for overwintering, active season, and breeding habitats are more complex than for other frog species.

Once Critical Habitat Is Designated, Will The Outcome Of Section 7 Consultations In Occupied Habitat Be Different?

What Types Of Project Modifications Are Currently Recommended Or Will Likely Be Recommended By The Service To Avoid Jeopardy (i.e., The Continued Existence Of The Species)?

For actions located on Federal lands, or subject to consultation through a Federal nexus or action (e.g., Federal funds), a jeopardy analysis for the Oregon spotted frog would look at the magnitude of a project's impact relevant to the population across the species' entire range. Furthermore, the jeopardy analysis would focus on effects to the species' reproduction, numbers, or distribution, including an analysis of habitat modifications that would limit the ability to move between breeding areas, and hinder the expansion of the populations for recovery.

To date, there have been no consultations that have resulted in a finding of jeopardy for the Oregon spotted frog because there are no Federal regulatory requirements under the Act in place to protect the candidate species. To date, the only known consultations (conferences) have been for actions funded or carried out by the Service, including habitat management/restoration and research.

If we determine that an action jeopardizes Oregon spotted frogs in future section 7 consultations, recommended project modification(s) could include one or more of the measures listed below, depending on the proposed action. This is not an exhaustive list.

1. Implement seasonal restriction or modification to projects occurring within a known occupied area to enable recovery of the species.

2. Reduce the size and configuration of the proposed project to avoid, reduce, or eliminate the effects to the species.

3. Do not implement ground disturbing activities that would eliminate wetland or riparian areas or cause instability of banks.

4. Offset permanent habitat loss with suitable habitat that is permanently protected elsewhere within the same sub-basin, including adequate funding to ensure that habitat is managed permanently for the protection of the species.

5. Oregon spotted frog habitat loss, modification, or fragmentation on Federal lands should not be offset with protection of other Federal lands that would otherwise qualify for protection if the standards set forth in other agency guidance were applied to those lands.

6. Altering dam operations to more closely mimic a natural hydrograph and improve the overall longevity of the habitat below the dam.

7. Reducing or retiring of other water consumptive stressors (such as water diversion or ground water pumping) to offset impacts.

8. Modify grazing operations through fencing, reconfiguration of grazing units, off-site water development, seasons and heaviness of use.

9. Improve the development of native wetland vegetation through reducing land- and water-management stressors.

10. Retain herbaceous wetland vegetation.

11. Alter or prohibit nonnative stocking practices.

12. Alter tree and shrub planting schemes for restoration projects.

13. Manage vegetation that can structurally mimic emergent wetland vegetation (early seral condition).

INCREMENTAL IMPACTS ANALYSIS

ADVERSE MODIFICATION ANALYSIS

Explain Additional Recommendations The Service Will Make When Considering Both Jeopardy And Adverse Modification.

Jeopardy and adverse modification are not equivalent standards; however, the outcome of section 7 consultations under these standards may be similar in some cases. Alterations of occupied habitat that diminish the value of the habitat (e.g., changes to habitat for any of the life stages, decreases or changes to the food base, decreases or changes to water quality or quantity, increase in pollutants, or increases in the number or extent of invasive, non-indigenous species with greater than minimal effects on survival) could result in adverse modification if the effect is severe enough to render the habitat incapable of providing its intended conservation function. If the action also would affect the remaining populations, population size, reproduction, and recruitment to the extent that the likelihood of survival in the wild is appreciably reduced, a jeopardy determination also would result. Because the ability of this species to exist is very

closely tied to the quantity and quality of the habitat, significant alterations of the occupied habitat may result in jeopardy as well as adverse modification. In addition, the proposed critical habitat units encompass the current extent of the species range. Therefore, we anticipate that section 7 consultation analyses will likely result in no difference between conservation recommendations to avoid jeopardy or adverse modification in occupied areas of critical habitat.

Temporarily Unoccupied or not Suitable Habitat

Most of the critical habitat units have areas that require frequent control of invasive nonnative vegetation to maintain suitable conditions for the species, and a number of units have areas that undergo significant and annual water manipulation. Because the site conditions vary over time and habitat may be temporarily unsuitable, there may be periods of time when the species are not present but the areas are still essential for recovery.

Even though the Oregon spotted frog may not be present each year at a specific location, the species may use areas on an intermittent basis, or return to areas when habitat conditions become suitable (e.g., during wetter seasons following high precipitation years). Accordingly, even though the species may not be present when a project is proposed or when surveys are conducted, the Service is likely to presume occupancy in such areas and analyze effects to both the species and the physical or biological features within designated critical habitat. In these situations, the outcome of section 7 consultation would likely result in minimal incremental impacts, because conservation measures to minimize impacts to individuals and the physical and biological features of critical habitat may be identical. Therefore, the incremental costs in these consultations would likely be limited to the additional administrative costs to consider critical habitat. The Service could potentially consult on effects to critical habitat alone in occupied habitat for short-term projects with no permanent or residual effects, that are implemented when the species is temporarily absent (e.g., during periods when habitat isn't being used during seasonal low water periods). In other words, the action agencies could determine that these projects would have no effect on Oregon spotted frog individuals and would only be required to consult on the effects to critical habitat.

What Federal Agencies Or Project Proponents Are Likely To Consult With The Service Under Section 7 With Designation Of Critical Habitat? What Kinds Of Additional Activities Are Likely To Undergo Consultation With Critical Habitat?

The same Federal agencies listed above under the baseline analysis are expected to be the primary agencies that would consult with the Service under section 7 on the Oregon spotted frog critical habitat. We expect consultation to primarily involve actions occurring within wetlands, streams, and floodplains that impact wetland, riparian, and stream function. We do anticipate that there will be some Federal agencies with responsibility in specific Oregon spotted frog critical habitat units that will now consider consultation of the Oregon spotted frog habitat where it may have been rarely addressed in the past. We anticipate that incremental effect would be most likely to occur along designated areas that are not currently known to be occupied. However, these areas are intermingled and adjacent to occupied areas and as discussed above, we anticipate the Federal agencies will follow a similar course of action as with other listings (e.g., marbled murrelet and northern spotted owl) and treat these areas as occupied.

Proposed actions that would result in sufficient harm or harassment to constitute jeopardy to this proposed species would also likely adversely affect PCEs in the occupied designated critical habitat. For example, instream construction activities that cause a large loss of egg masses or adults may result in a jeopardy determination. In addition, construction activities may also be disturbing water permanence or depth and vegetation to such an extent that critical habitat may also be adversely modified. As such, project modifications that minimize effects to the Oregon spotted frog would coincidentally minimize effects to designated critical habitat. Accordingly, in occupied critical habitat it is unlikely that an analysis would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat from measure needed to avoid jeopardizing the species. Therefore, we do not anticipate any incremental effects in regard to developing and implementing conservation actions in critical habitat for the Oregon spotted frog.

UNOCCUPIED AREAS

Does the designation include unoccupied habitat that was not previously subject to the requirements of section 7?

Because the Oregon spotted frog is not currently listed under the Act, there is no prior consultation history for this species; therefore, neither the occupied or not known to be occupied areas within proposed critical habitat were subject to section 7.

The unoccupied areas have not been surveyed, but may actually be occupied, since they are adjacent to occupied areas and contain suitable habitat for the species at varying life stages. If these areas are actually occupied, it is unlikely there would be a difference between the conservation measures necessary to avoid jeopardy and those necessary to avoid the destruction or adverse modification of critical habitat for the same reasoning applied to the occupied areas above. Due to the proximity of these areas to adjacent occupied critical habitat, we anticipate that Federal agencies would likely consider the not known to be occupied areas to be occupied in most cases in order to simplify the analysis of potential impacts of their actions during section 7 consultation. However, if a Federal agency opted to consult under the destruction/adverse modification standard alone within these areas, and the Service agreed that the action area is unoccupied, the consultation costs would be entirely attributable to the critical habitat designation. The administrative costs associated with conducting adverse modification analysis for effects to critical habitat in the portions of units where Oregon spotted frog occupancy is currently unknown are anticipated to be relatively low.

Within 5 of the 14 proposed critical habitat units there are 455 acres and less than 1 river mile that were not known to be occupied by the Oregon spotted frog at the time of the development of the proposed listing rule. However, in 2013, subsequent to the development of the proposed rule, surveys for Oregon spotted frogs resulted in changing our determination of occupancy for 100 acres within the proposed critical habitat, thus reducing the amount of area of "not known to be occupied" from 455 acres to 355 acres. In Unit 8a, surveys resulted in changing our determination of occupancy of 42 acres on USFS lands and in Unit 13, surveys resulted in changing our determination of occupancy of 58 acres on private lands. Based on the newest

information, 65 percent (229 acres) of the acres and all of the river miles of the not known to be occupied areas are under private or county ownership, where section 7 consultation would only be necessary if an action is funded, authorized or carried out by a Federal agency. Only two critical habitat units (subunit 8A and unit 9) contain not known to be occupied acres (113 acres) that are under Federal ownership (USFS) and, based on previous consultation history for other listed species and discussion we have had with the USFS on the proposed critical habitat for Oregon spotted frog, we anticipate the USFS will treat these areas as occupied for the purposes of consultation.

For the purposes of this economic analysis, due to the proximity of the unoccupied critical habitat to adjacent occupied critical habitat, we anticipate that all units would be considered to be occupied and costs associated with consultations would be attributed to listing of the species (baseline) and would only incur increased administrative costs to address the critical habitat in the consultation, as noted above.

Provide Information About The Likelihood That Project Proponents Would Have Known About The Potential Presence Of The Species Absent Critical Habitat

Outside of the Federal land managers, the Federal agencies that fund or permit activities (e.g., ACOE or NRCS) were generally unaware of the species presence prior to outreach conducted during the listing process. The designation of critical habitat will inform local, county, and State agencies that permit or carry out activities that might not otherwise have known of the species' presence. However, in Washington, these non-Federal entities should already be aware because most State, county, and local permitting authorities require submission of the State listed species occurrence data that can be downloaded from the website operated by WDFW, which contains all known Oregon spotted frog occurrences.

BEHAVIOR CHANGES

Will the designation provide new information to stakeholders resulting in different behavior?

Describe Actions Taken By Stakeholders As A Result Of Critical Habitat.

In Washington, private landowners may choose to fence off their lands and discontinue management in critical habitat. In many cases, this could be detrimental to Oregon spotted frogs.

In the Upper Deschutes River basin (Units 8 and 9), there is a very small overlap with bull trout critical habitat in the hydrologically-isolated Odell/Davis basin. The remainder of the Upper Deschutes Basin does not have any aquatic, Act-listed species. Therefore, we anticipate that there will be a significant change in behavior of stakeholders as a result of a critical habitat designation. Stakeholders have not previously consulted with the Service, but we anticipate this listing will result in stakeholders working with the Service to design their projects to be compatible with OSF.

In the Klamath Basin of Oregon there is significant overlap between the proposed Oregon spotted frog critical habitat and critical habitat designations for other aquatic species. Some conservation measures currently implemented for these other critical habitat designations may also benefit critical habitat for Oregon spotted frog; however, these stakeholders will need to consider the specific PCE's of the Oregon spotted frog critical habitat where it occurs in overlap as well as areas where there is no current overlap.

Describe How Local Agencies Might Change Project Requirements.

The Service anticipates that the Federal designation of critical habitat would result in increased administrative costs and changes in the way development permits and other State or county permits are processed. The designation of critical habitat may result in local land use and resource agencies applying more stringent criteria on local permits and land use applications in both states. Some non-Federal entities may choose to develop Safe Harbor Agreements or Habitat Conservation Plans in order to be excluded from critical habitat. For example, in Deschutes County, Oregon, seven irrigation districts and the City of Prineville are developing a multi-species HCP that includes Oregon spotted frogs and will address storage and distribution of irrigation water and other related activities and this area was identified for potential exclusion in the proposed critical habitat rule. Also in Deschutes County, Oregon, the Service has been developing Candidate Conservation Agreements with Assurances (CCAA) with the owner of the Old Mill District property and Sunriver Homeowners Association.

In the Klamath Basin of Oregon there is significant overlap between Oregon spotted frog critical habitat and other critical habitat designations. Although these stakeholders are accustomed to consulting on critical habitat for other aquatic species, they will need to consider the specific PCE's of the Oregon spotted frog where it occurs in overlap as well as areas where there is no current overlap.

How Many New Consultations May Result From The Critical Habitat Alone?

Likely to be very few because we anticipate the Federal agencies to treat the not known to be occupied areas as occupied and prepare consultations that address both the species and critical habitat.

How Many New HCPs May Be Undertaken Or Amended As A Result Of The Critical Habitat Designation Alone?

Of the HCPs that currently include Oregon spotted frogs, only 1 (WDNR State Lands) has lands that are within proposed critical habitat, where the HCP is not currently applicable. It is unlikely that the HCP will be amended to include the proposed lands as they are in a Natural Area Preserve.

At this time, the Service does not anticipate any of the current HCPs to be amended as a result of the critical habitat designation alone.

Some non-Federal entities may choose to develop Safe Harbor Agreements or HCPs in order to be excluded from critical habitat. For example, Thurston County in Washington is already in the early planning stages of developing an HCP that will cover changes in land use regulations (e.g. critical area ordinances, building codes and permits, stormwater and shoreline permits) and operation and maintenance of county parks and facilities. In Oregon, the Deschutes Basin Board of Control and the City of Prineville are developing a HCP with the irrigation districts in the Upper Deschutes and Little Deschutes sub-basins.

Will There Be Changes In Permitting Processes By Other State Or Local Agencies Or Other Land Managers?

The Service anticipates the Federal designation of critical habitat would result in changes in the way development permits and other State or county permits are processed. The designation of critical habitat may result in local land use and resource agencies applying more stringent criteria on local permits and land use applications in both states.

The designation of critical habitat may encourage the five counties in Washington to revise their county area ordinances to allow management of the invasive reed canarygrass in areas that currently have restricted access.

The Service is working with Deschutes County to review local ordinances that protect wetlands and riparian areas. The designation of critical habitat is not anticipated to result in changes to local Deschutes County ordinances.

ADMINISTRATIVE EFFORTS

How Much Administrative Effort Does Or Will The Service Expend To Address Adverse Modification In Its Section 7 Consultations With Critical Habitat? Estimate The Difference Compared To Baseline.

Based on the potential increase in consultations resulting from areas being proposed as critical habitat, we anticipate some increase in overall consultation workload and administrative efforts for Federal agencies and the Service. However, we would consider the vast majority of the increase to result from the listing of the species and not solely from the designation of critical habitat. The amount of increased administrative effort due to proposed critical habitat is difficult to foresee and quantify due to a lack of consultation history. Nevertheless, when we complete a consultation for the Oregon spotted frog with critical habitat, each consultation will evaluate whether that project would result in adverse modification. As a result, each formal consultation that "may adversely affect" critical habitat has to consider adverse modification. This effort will depend on the nature and complexity of any future consultation. Overall, we do not anticipate a substantial number of consultations that would result in adverse modification and, therefore, neither do we anticipate a substantial increase in administrative effort to work on measures to avoid adverse modification.

Because we have very little consultation history within the areas proposed for critical habitat, we cannot predict the number of consultations that will result from the Oregon spotted frog listing or

designation of critical habitat. Neither is there an appropriate surrogate listed species that shares similar habitat traits or overlaps in range from which we could extrapolate an estimate of consultations. The likely number of consultations and administrative effort is likely to differ between Washington and Oregon because of the land ownership within the proposed critical habitat units.

In Washington, only about a third of the proposed critical habitat is under Federal ownership (Service and USFS) and these agencies have experience with conducting consultations for other listed species. However, Federal agencies that may be conducting, funding, or permitting actions in the remaining two-thirds of the proposed critical habitat are likely to require more time expenditure (including Service staff) for the first several years after listing in order to begin and understand the consultation process and needs of the species. In any case, we would consider the vast majority of the increase to be associated with the listing of the species and not solely on the designation of critical habitat.

In Oregon, 75 percent of the proposed critical habitat is under Federal ownership (USFS, BLM, Service) and these agencies have experience with conducting consultations for other listed species and their critical habitats. For example, in Units 12-14, where there is considerable overlap of bull trout, Lost River sucker, and short-nose sucker critical habitats with Oregon spotted frog proposed critical habitat, the Klamath Falls Fish and Wildlife Office has conducted 14 critical habitat consultations (1 formal conference, 10 informals, and 3 formals) since the final revision of critical habitat for the two sucker species in 2012 and 10 critical habitat consultations (7 informals and 3 formals) since the final revision of bull trout critical habitat in 2010. In this area, we would not anticipate a substantial increase in administrative effort.

PROBABLE PROJECTS

Table 4 includes the known probable projects that may affect the critical habitat designation or require consultation.

Table 4: Known probable projects that may affect the critical habitat designation or require consultation under section 7 of the Act

Critical Habitat Unit	Federal Action Agency/Land Ownership	Probable Project	Project Timing	Potential Project Modification or Conservation Measures
Units 1-14 (where applicable)	USFS	National Fire Retardant Consultation	Unknown	
Units 1-14 (where applicable)	BLM, USFS, BIA	Aquatic Restoration Biological Opinion	Unknown	
Units 1-6	Federal Highways	WDOT programmatic – general maintenance program and fish passage culvert replacements	17 year programmatic to be completed in FY 2014	
Units 1-6	NRCS/FSA	WRP, CREP, EQIP, WHIP	As needed	
Units 1-6	USDA APHIS/Wildlife Services	Washington Statewide consultation for beaver removal activities		
Unit 3	NRCS	WRP Restoration Cost Share Agreement with Whatcom Land Trust	Planning underway	

Unit 4	**NRCS**	**Interagency Agreement with Nisqually NWR Complex for Black River wetland vegetation manipulations on WRP easements**	**Planning underway**	
Unit 11	**Willamette NF**	**Campground and Trail maintenance**	**Annual**	
Unit 11	**Willamette NF**	**Grazing Allotments**	**Annual**	
Unit 8A	**Deschutes NF**	**Ryan Ranch Meadow Inundation**	**FY 2014-FY 2017**	
Unit 9	**Deschutes NF**	**Marsh Planning Area**		
Units 8 and 9	**Deschutes NF**	**Special Use Permits/Renewals**	**As needed**	
Units 8 and 9	**Deschutes NF**	**Deschutes and Ochoco NF Invasive Species EIS – reinitiate**		
Unit 9	**Prineville BLM**	**Grazing Allotments**	**Annual**	
Units 12-14	**USFWS-PFW**	**Aquatic restoration projects**	**As needed**	
Units 12-14	**Fremont-Winema NF**	**Grazing allotments (Antelope, Buck/Indian, Fourmile Springs, Yamsi)**	**Annual**	

	Fremont-Winema NF	**Sevenmile water right purchase**		
	Fremont-Winema NF	**Sevenmile mover/screen diversion**		
Units 12-14	**Fremont-Winema NF**	**Noxious Weeds EIS – reinitiate**		
Units 12-14	**Fremont-Winema NF**	**Travel management/road maintenance**		
Unit 12-14	**NRCS**	**WRP and CREP**	**As needed**	
Unit 12	**Fremont-Winema NF**	**Jack Creek restoration project**	**Completed FY15**	
Unit 12	**Fremont-Winema NF**	**Williamson River restoration project (Blue Jay project)**	**Completed FY 14**	
Unit 12	**USFWS-Refuge**	**Williamson River restoration project**	**August 2014**	1. Hydrologic restoration of 10,000 acres of floodplain 2. Conversion of 10 miles of irrigation ditches to floodplain wetlands 3. Removal of 20 miles of levees and roads 4. Construction of 3 miles of meandering river 5. Construction of 10 backwater channels 6. Construction and reactivation of shallow braided channels 7. Construction of a narrow meandering channel with diverse ponds, designed with

				Chris Pearl of USGS in Corvallis as an effectiveness monitoring project to be implemented in synchrony with the Williamson River restoration project for the purpose of evaluating relocation of OSFs. 8. Removal of 11 fish and aquatic wildlife barriers to the upstream Williamson 9. Fish screen installation for irrigation diversion on private lands 10. Large wood placement in new channel 11. 6 miles of powerline relocation 12. Willow planting
Unit 13	**BLM – Klamath Falls**	**Wood River OSF Habitat Enhancement (bank improvements and water withdrawal for predator control**		
Unit 13	**BLM – Klamath Falls**	**Wood River Wetlnad Management and Operations Biological Opinion - reinitiation**		

Land Use Sectors Within The Critical Habitat Designation Area

The following economic activities may occur in one or multiple proposed critical habitat units and may be impacted by the designation of critical habitat:

Agriculture
Conservation/restoration
Development
Dredging: this would primarily be associated with ditch maintenance
Fire management
Flood control: water control structures, such as dikes and ditches
Forest management:
Grazing
In-water construction: such as dams, dikes, ponds, bridges, culverts, docks
Recreation
Transportation
Utilities: right-of-ways along utility corridors
Water quality
Water quantity/supply

There is a Federal nexus for each of these economic activities when activities occur on Federal lands. On non-Federal lands, there is only a Federal nexus when these activities are authorized, funded, or carried out by a Federal agency. For example, if an in-water construction activity takes place in a waterway that would require a permit from the Corps, then there is a Federal nexus. However, a permit from the Corps is not required in all waterways in which Oregon spotted frogs occur.

Consultation History Within The Critical Habitat Designation Area

There is almost no consultation history for the Oregon spotted frog. In Washington and Oregon, intra-Service conferences have been completed for Service-funded research and restoration projects, such as, capture/tracking and habitat management and restoration including mowing, fire, grazing, re-channelizing creeks and rivers to provide breeding and rearing habitat, construction of breeding ponds, construction of riparian fences to exclude cattle, and the installation of alternate water sources. There have been no informal or formal conferences completed with other Federal agencies.

CONCLUSION

In summary, the incremental effects of the designation of critical habitat for the Oregon spotted frog are expected to be minor when compared to listing the species itself. In an undetermined but likely small number of cases, projects may adversely affect Oregon spotted frog critical habitat that would not adversely affect individual Oregon spotted frogs, thus resulting in formal section 7 consultations solely as a result of critical habitat. However, because all the units we are designating are occupied by breeding populations of the species and we anticipate the Federal agencies to consider the not known to be occupied areas as occupied, the conservation measures for critical habitat in most cases would be similar to those identified above for listing or sensitive species management.

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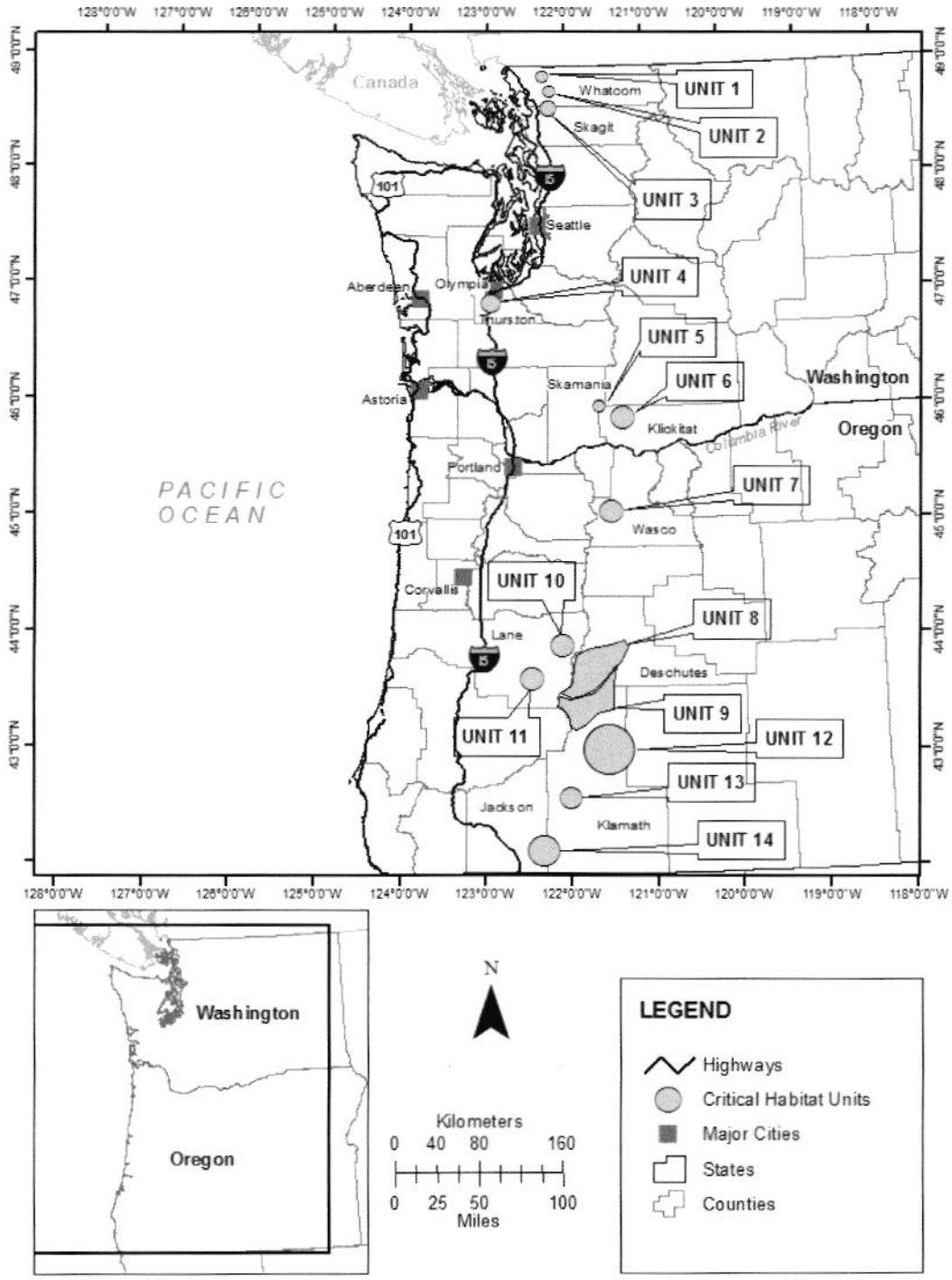
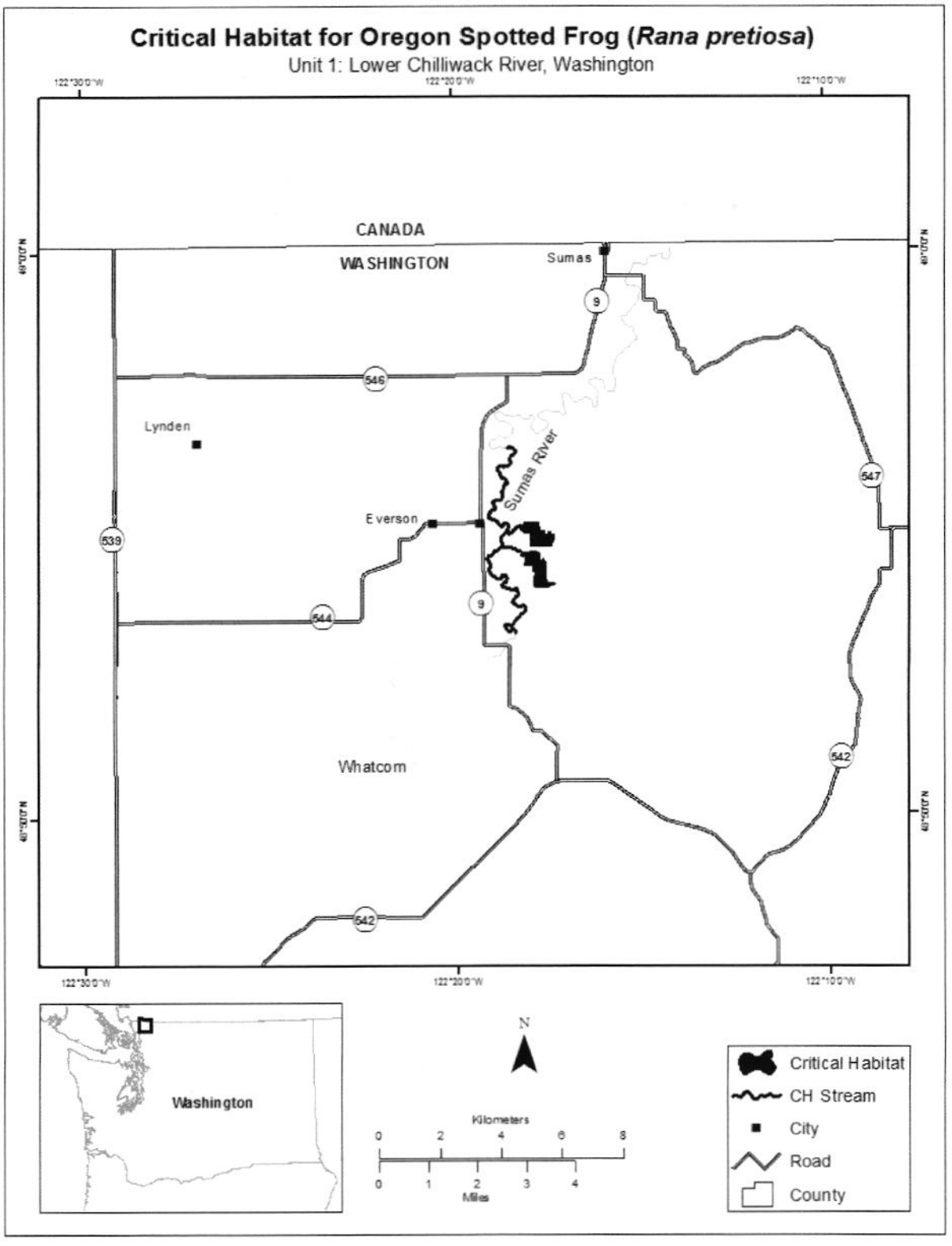
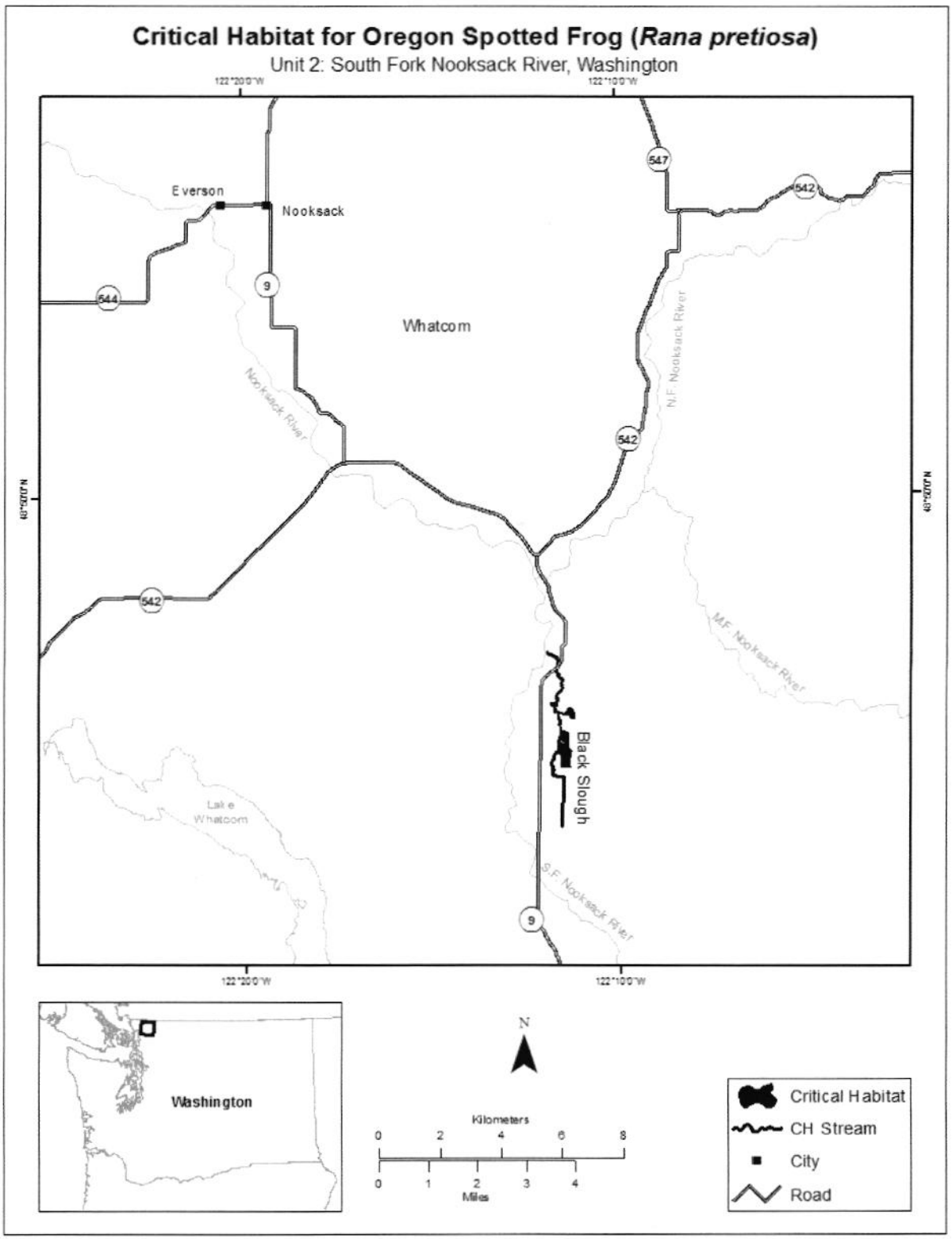
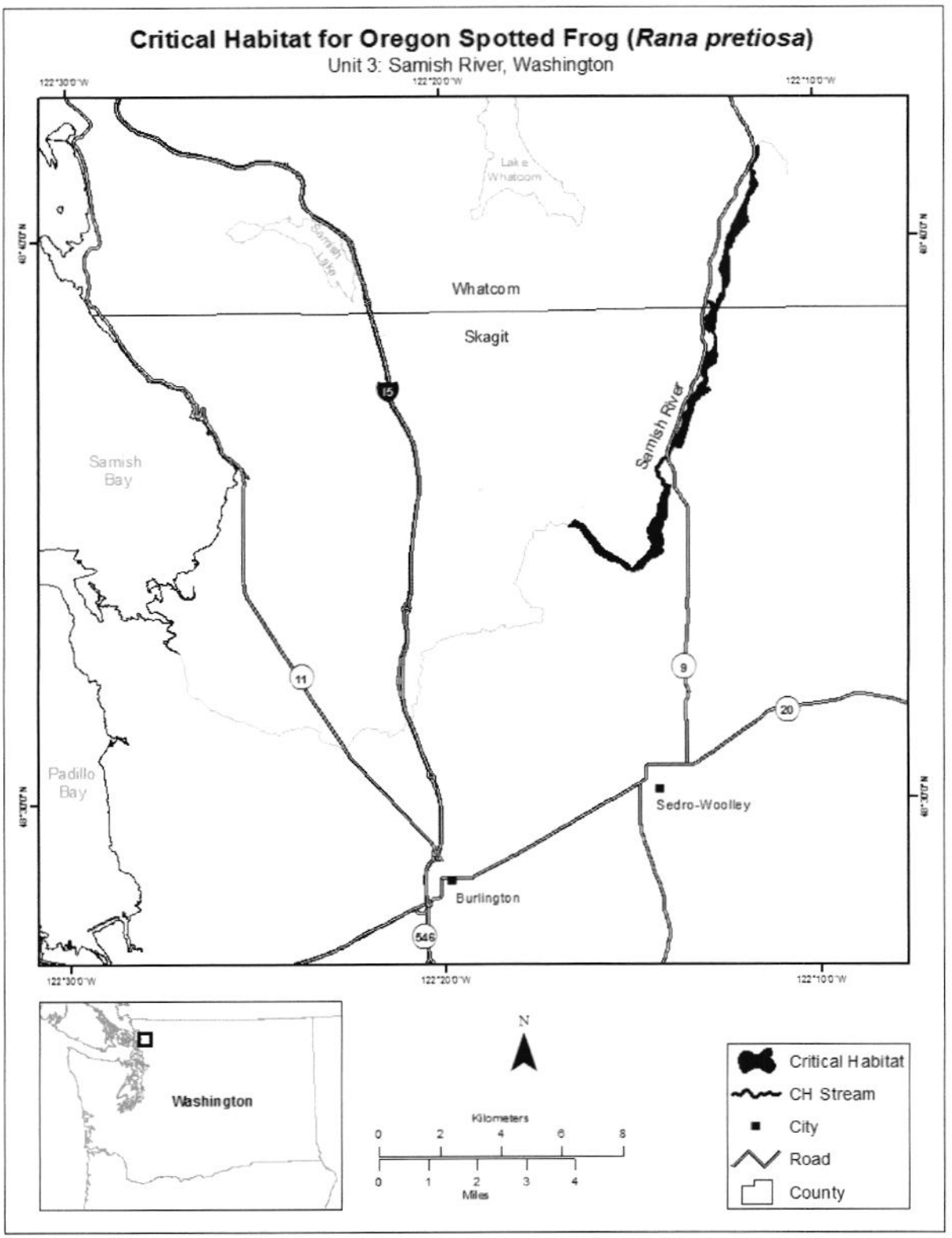
APPENDIX A

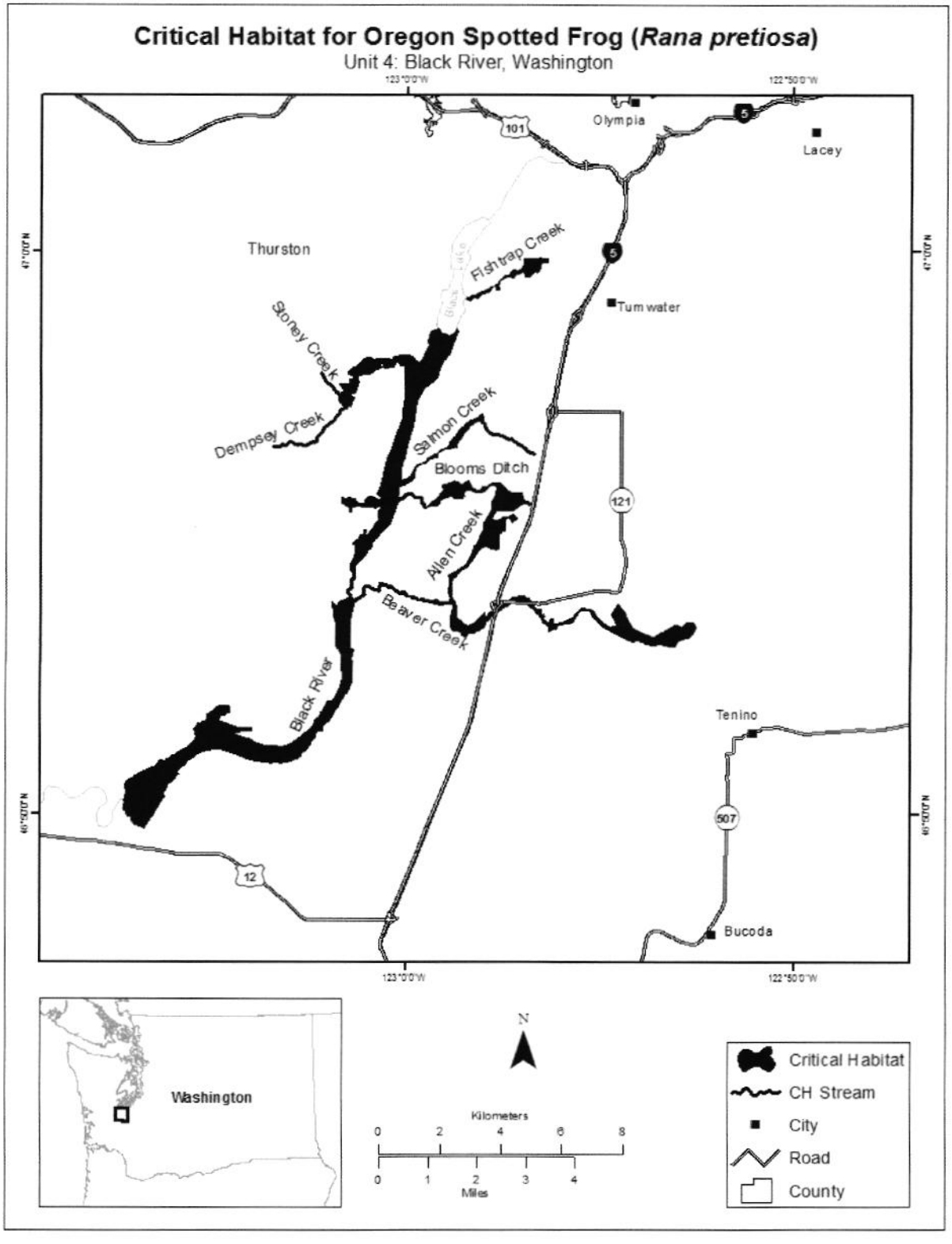
Critical Habitat for Oregon Spotted Frog in Washington and Oregon

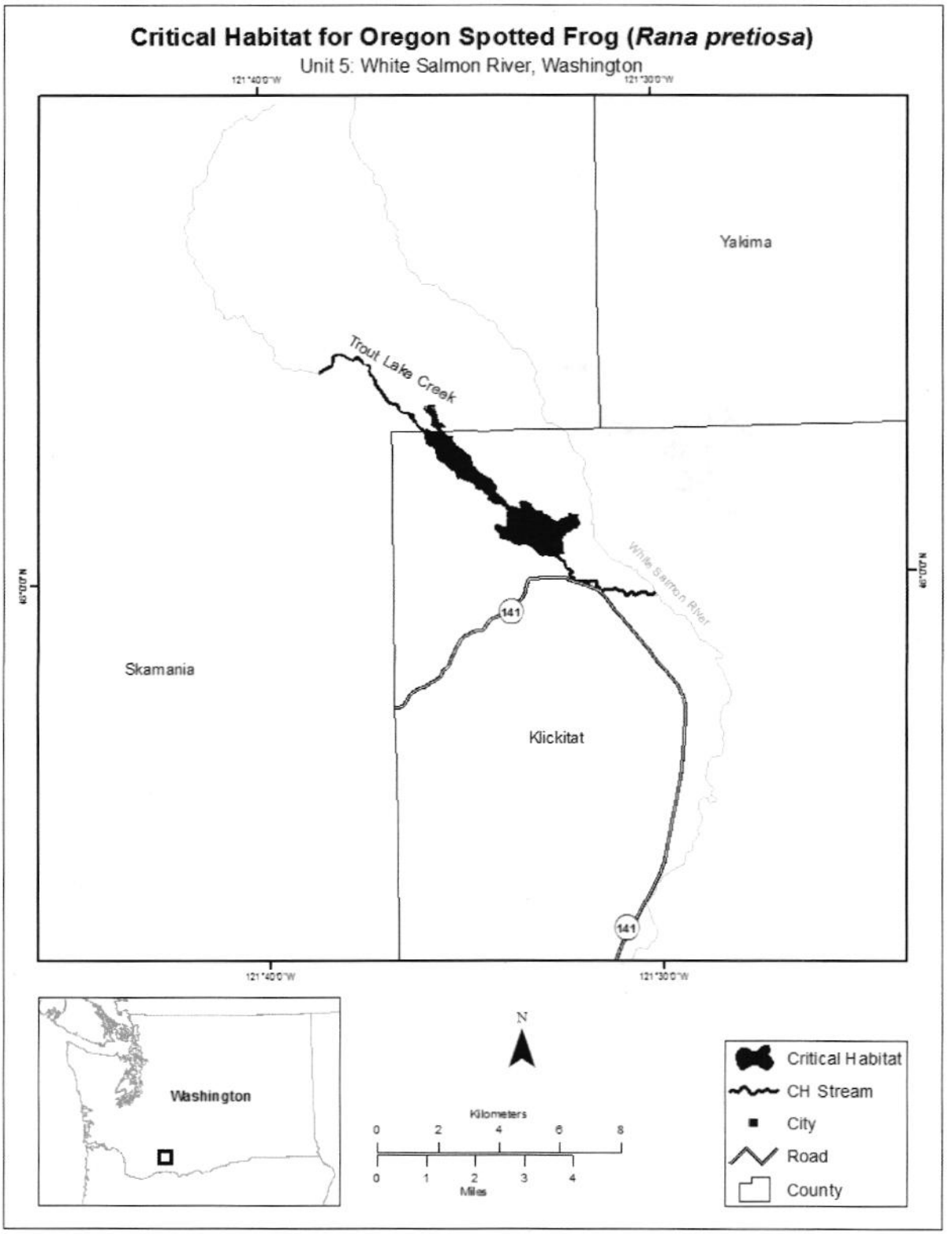


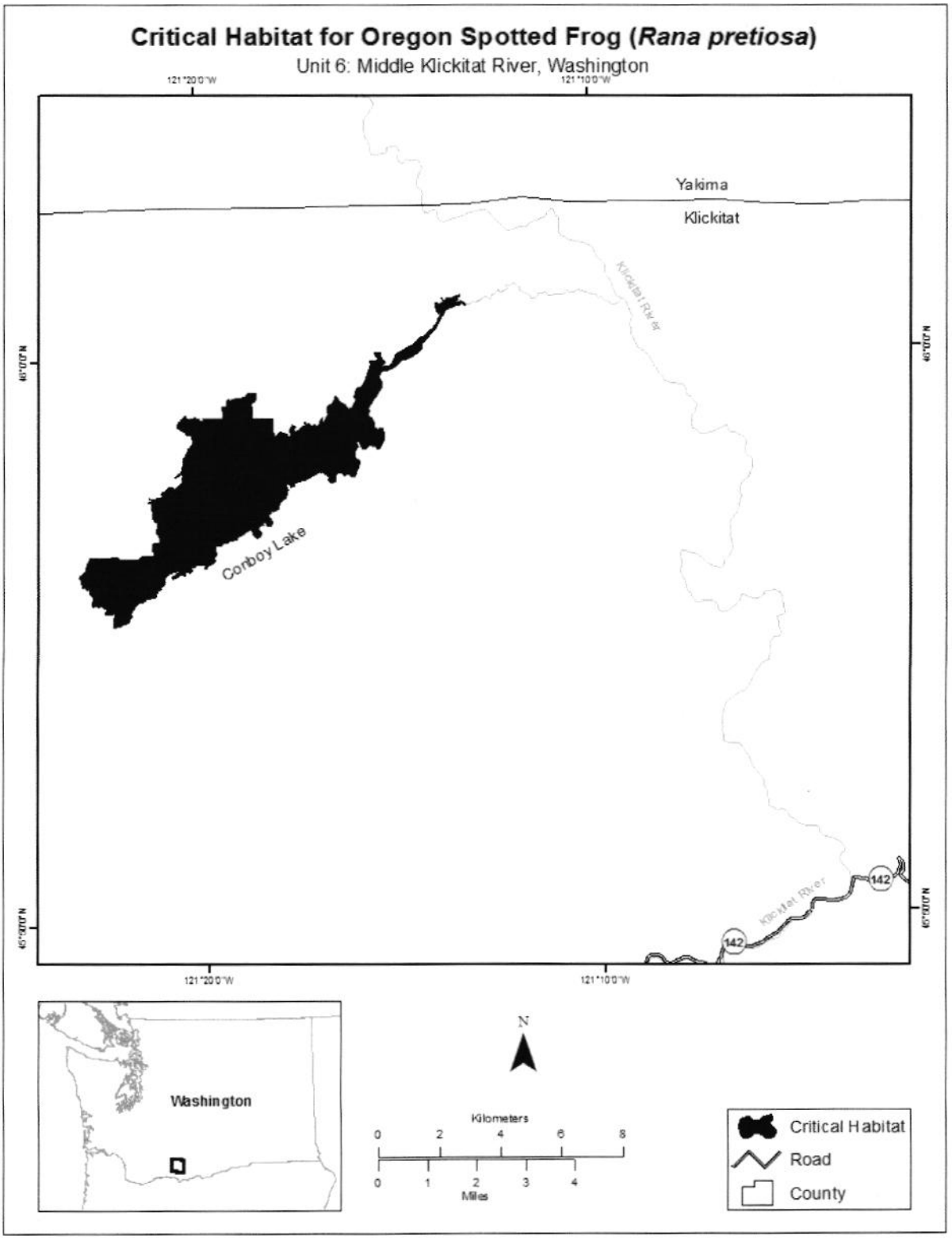

Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 1: Lower Chilliwack River, Washington
122°30'0"W
122°20'0"W
122°10'0"W
49°0'0"N
49°5'0"N
CANADA
WASHINGTON
Sumas
9
546
Lynden
Sumas River
547
Everson
539
544
9
542
Whatcom
542
Washington
N
Kilometers
0 2 4 6 8
0 1 2 3 4
Miles
Critical Habitat
CH Stream
City
Road
County

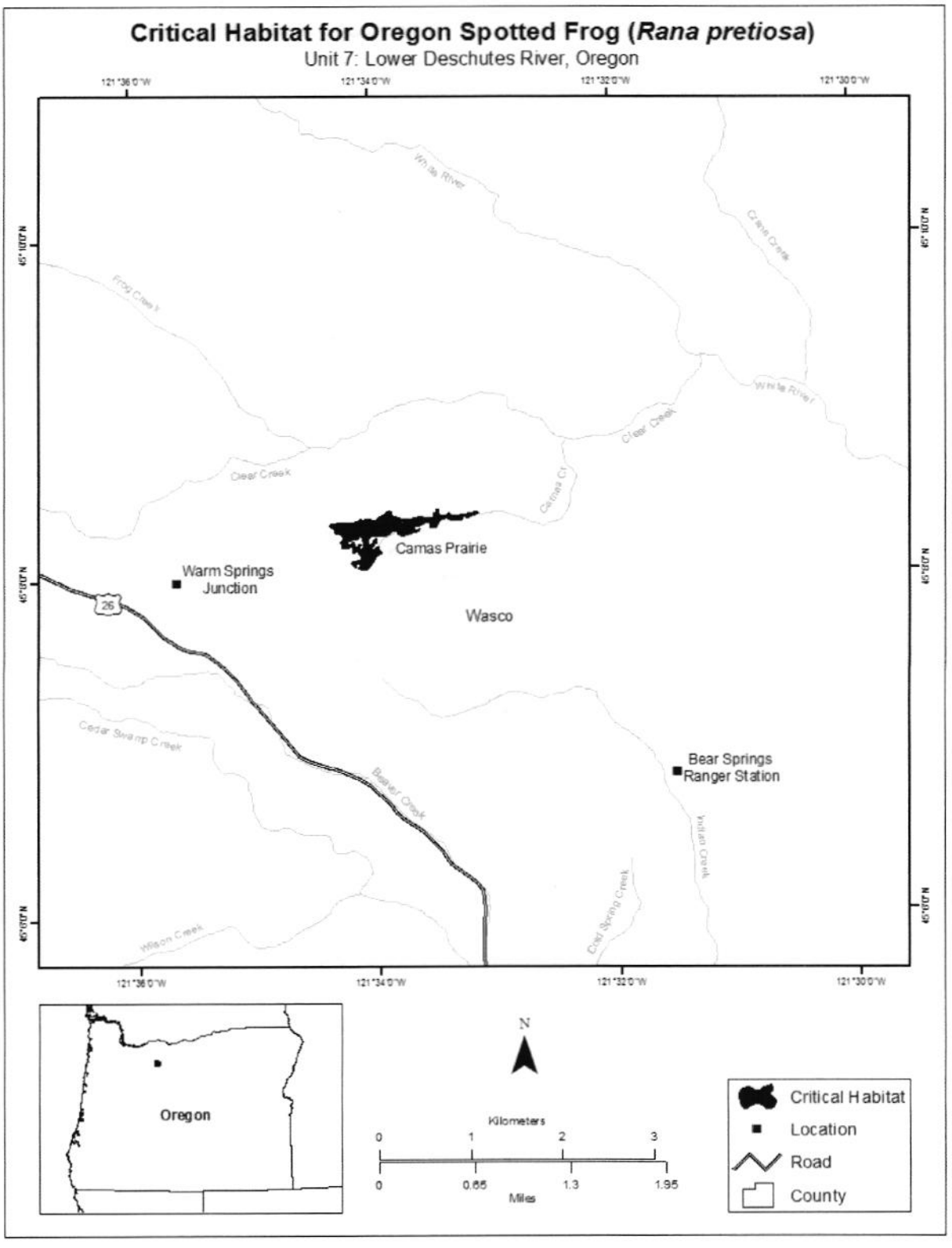

Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 2: South Fork Nooksack River, Washington
122°20'0"W
122°10'0"W
49°0'0"N
48°52'0"N
Everson
Nooksack
Whatcom
547
542
544
9
Nooksack River
N.F. Nooksack River
M.F. Nooksack River
S.F. Nooksack River
Black Slough
Lake Whatcom
Washington
N
Kilometers
0 2 4 6 8
0 1 2 3 4
Miles
Critical Habitat
CH Stream
City
Road

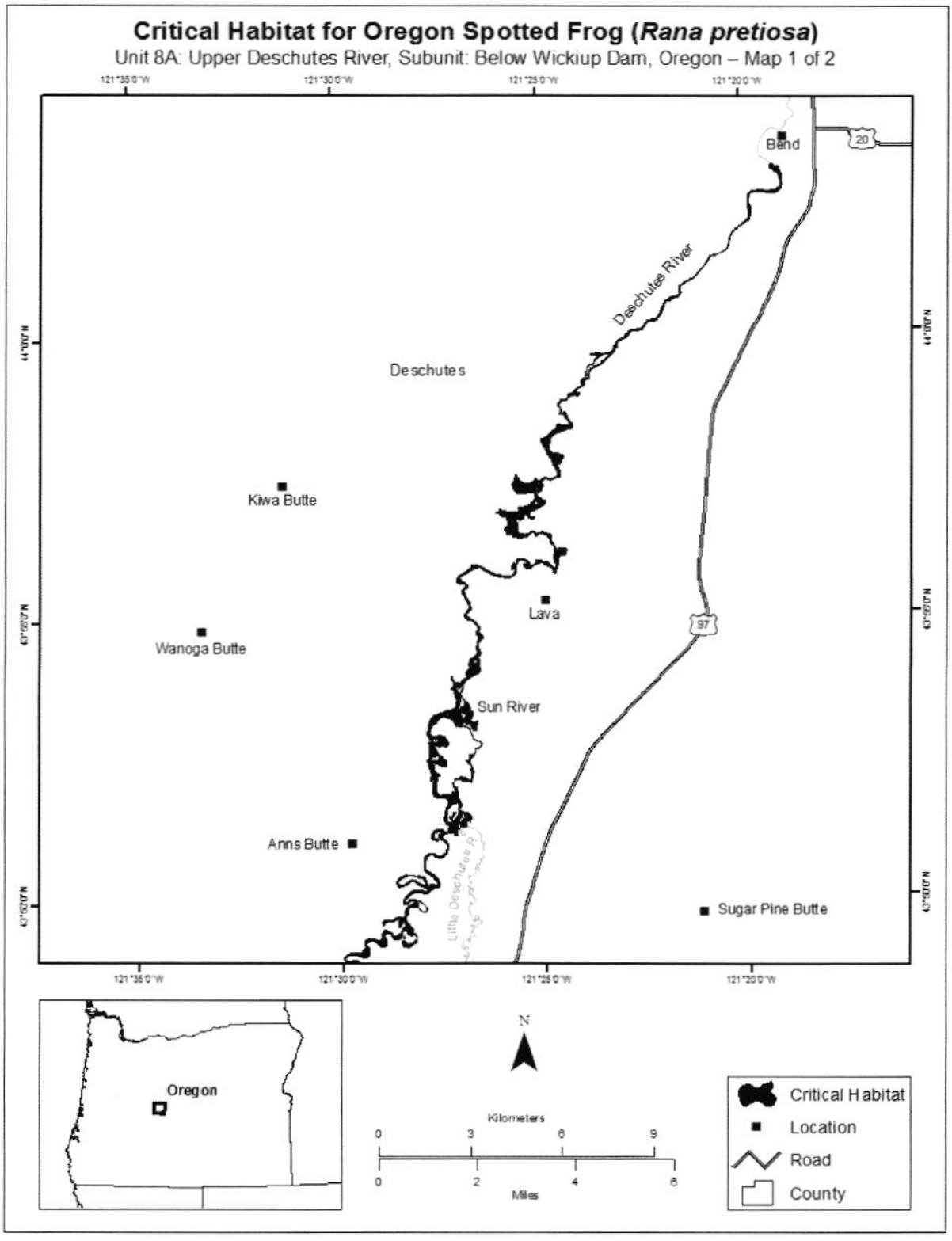

Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 3: Samish River, Washington
122°30'0"W
122°20'0"W
122°10'0"W
48°40'0"N
Lake Whatcom
Samish Lake
Whatcom
Skagit
5
Samish River
Samish Bay
11
9
20
Padilo Bay
Sedro-Woolley
Burlington
546
Washington
N
Kilometers
0 2 4 6 8
Miles
0 1 2 3 4
Critical Habitat
CH Stream
City
Road
County

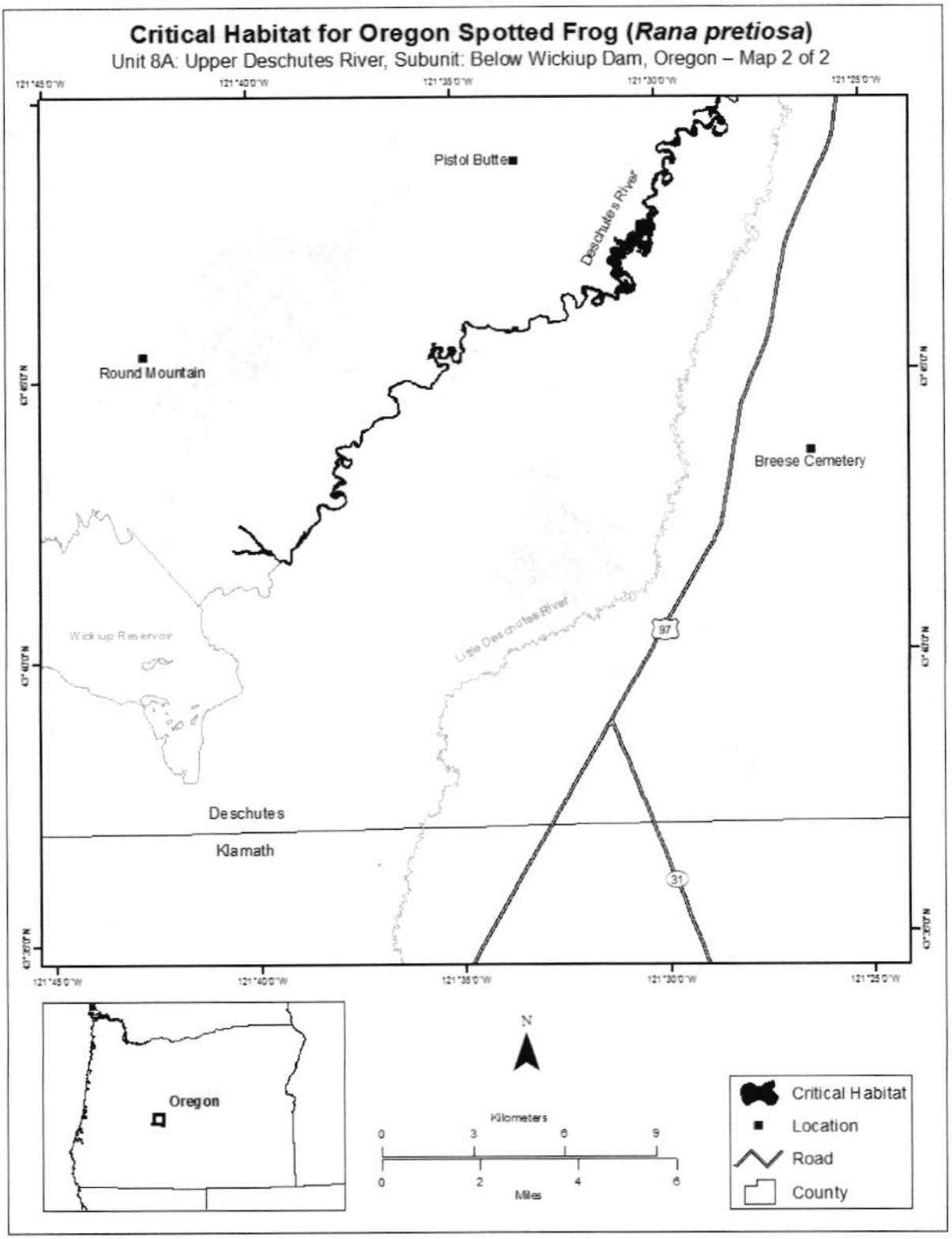

Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 4: Black River, Washington
123°0'0"W
122°50'0"W
47°0'0"N
46°50'0"N
Olympia
Lacey
Thurston
Fishtrap Creek
Tumwater
Stoney Creek
Dempsey Creek
Salmon Creek
Blooms Ditch
Allen Creek
Beaver Creek
Black River
Tenino
Bucoda
101
5
121
507
12
Washington
N
Kilometers
0 2 4 6 8
0 1 2 3 4
Miles
Critical Habitat
CH Stream
City
Road
County

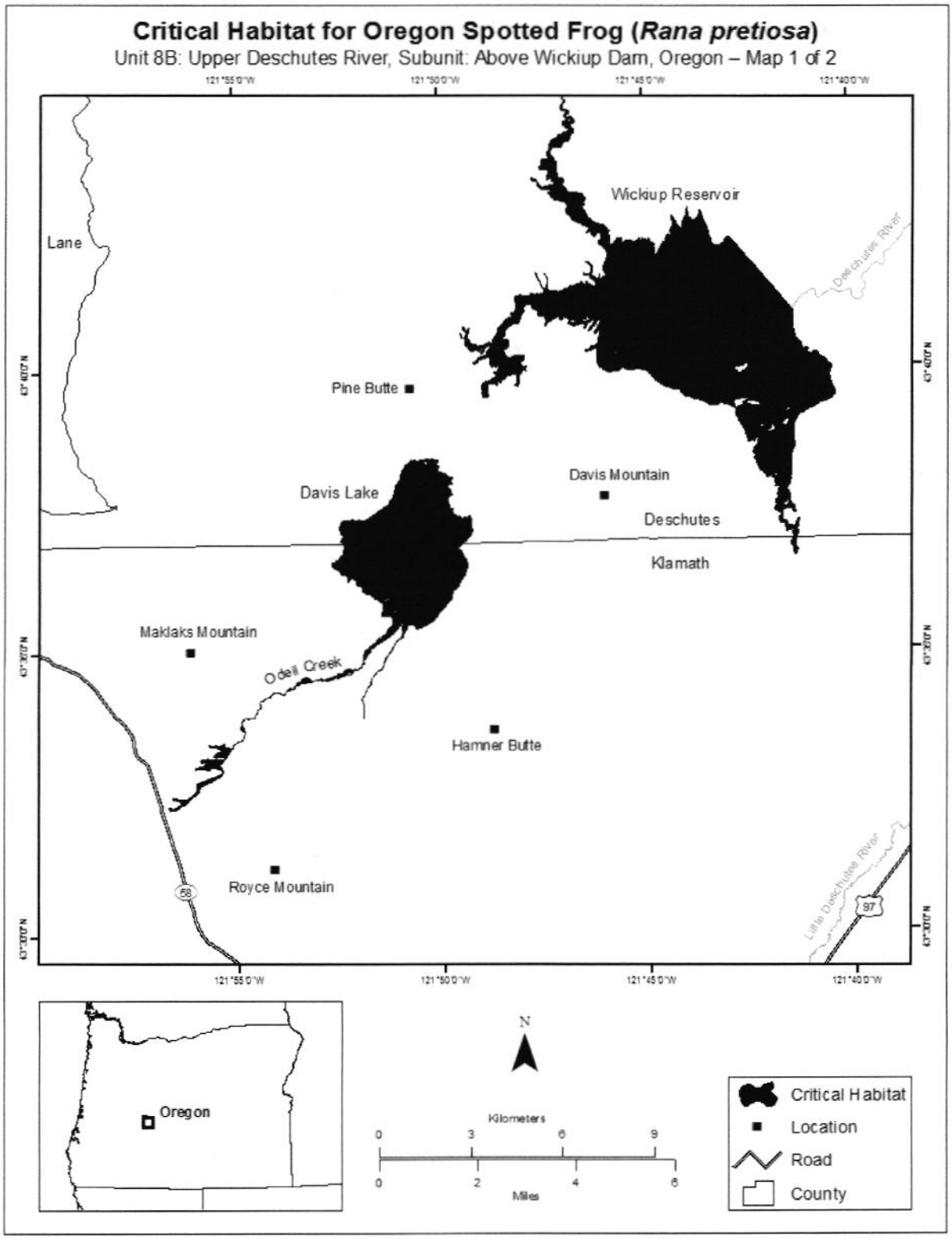

Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 5: White Salmon River, Washington
121°40'0"W
121°30'0"W
46°0'0"N
Yakima
Trout Lake Creek
White Salmon River
141
Skamania
Klickitat
Washington
N
Kilometers
0 2 4 6 8
Miles
0 1 2 3 4
Critical Habitat
CH Stream
City
Road
County

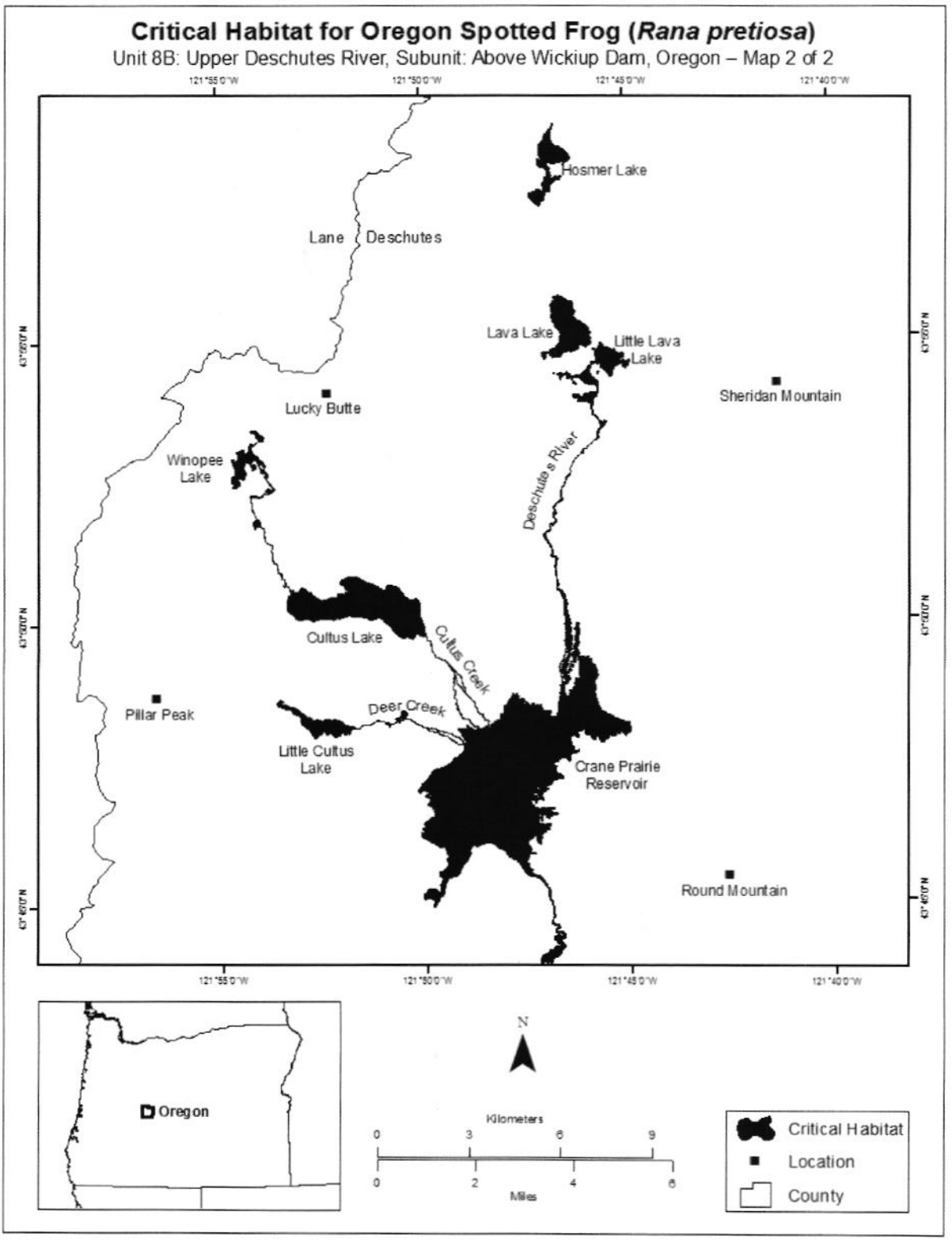

Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 6: Middle Klickitat River, Washington
121°20'0"W
121°10'0"W
Yakima
Klickitat
Klickitat River
45°0'0"N
Conboy Lake
142
Klickitat River
Washington
N
Kilometers
0 2 4 6 8
0 1 2 3 4
Miles
Critical Habitat
Road
County

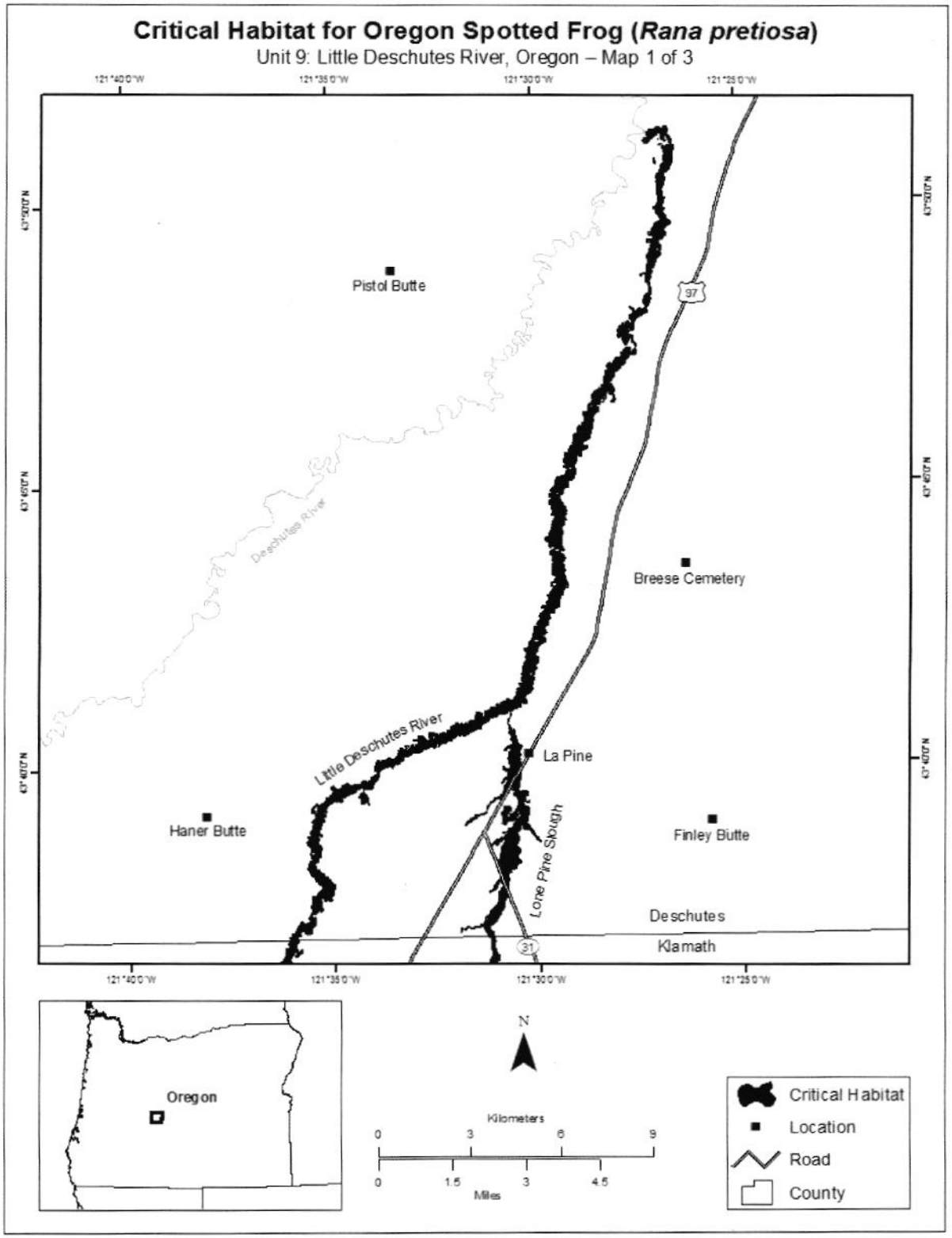

Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 7: Lower Deschutes River, Oregon
121°36'0"W
121°34'0"W
121°32'0"W
121°30'0"W
45°10'0"N
45°08'0"N
45°06'0"N
White River
Crane Creek
Frog Creek
Clear Creek
Camas Prairie
Warm Springs Junction
26
Wasco
Cedar Swamp Creek
Bear Springs Ranger Station
Indian Creek
Hilson Creek
Oregon
N
Kilometers
0 1 2 3
0 0.65 1.3 1.95
Miles
Critical Habitat
Location
Road
County

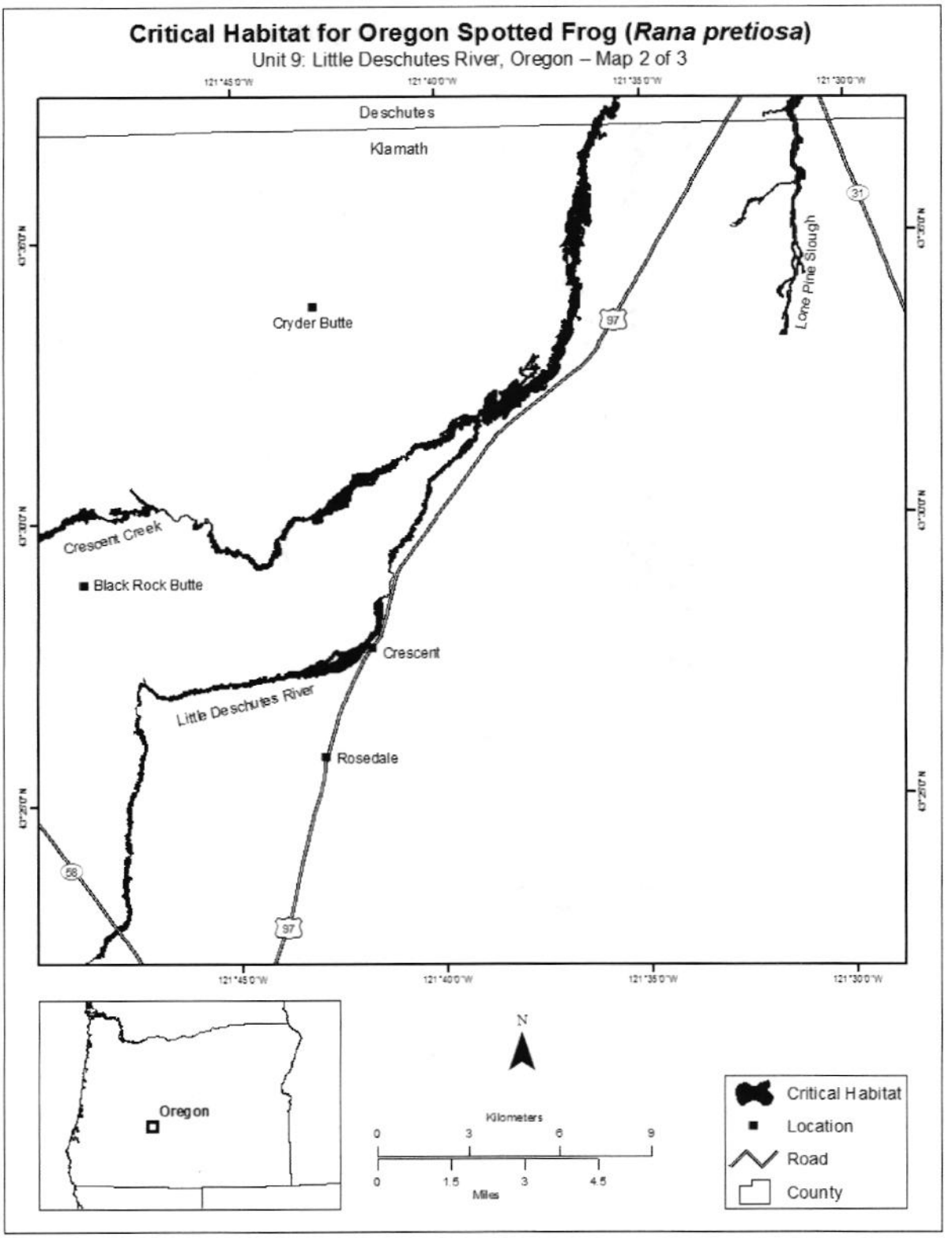

Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 8A: Upper Deschutes River, Subunit: Below Wickiup Dam, Oregon – Map 1 of 2
121°35'0"W
121°30'0"W
121°25'0"W
121°20'0"W
44°0'0"N
43°55'0"N
43°50'0"N
Bend
20
Deschutes River
Deschutes
Kiwa Butte
Lava
97
Wanoga Butte
Sun River
Anns Butte
Little Deschutes R.
Sugar Pine Butte
Oregon
N
Kilometers
0 3 6 9
Miles
0 2 4 6
Critical Habitat
Location
Road
County

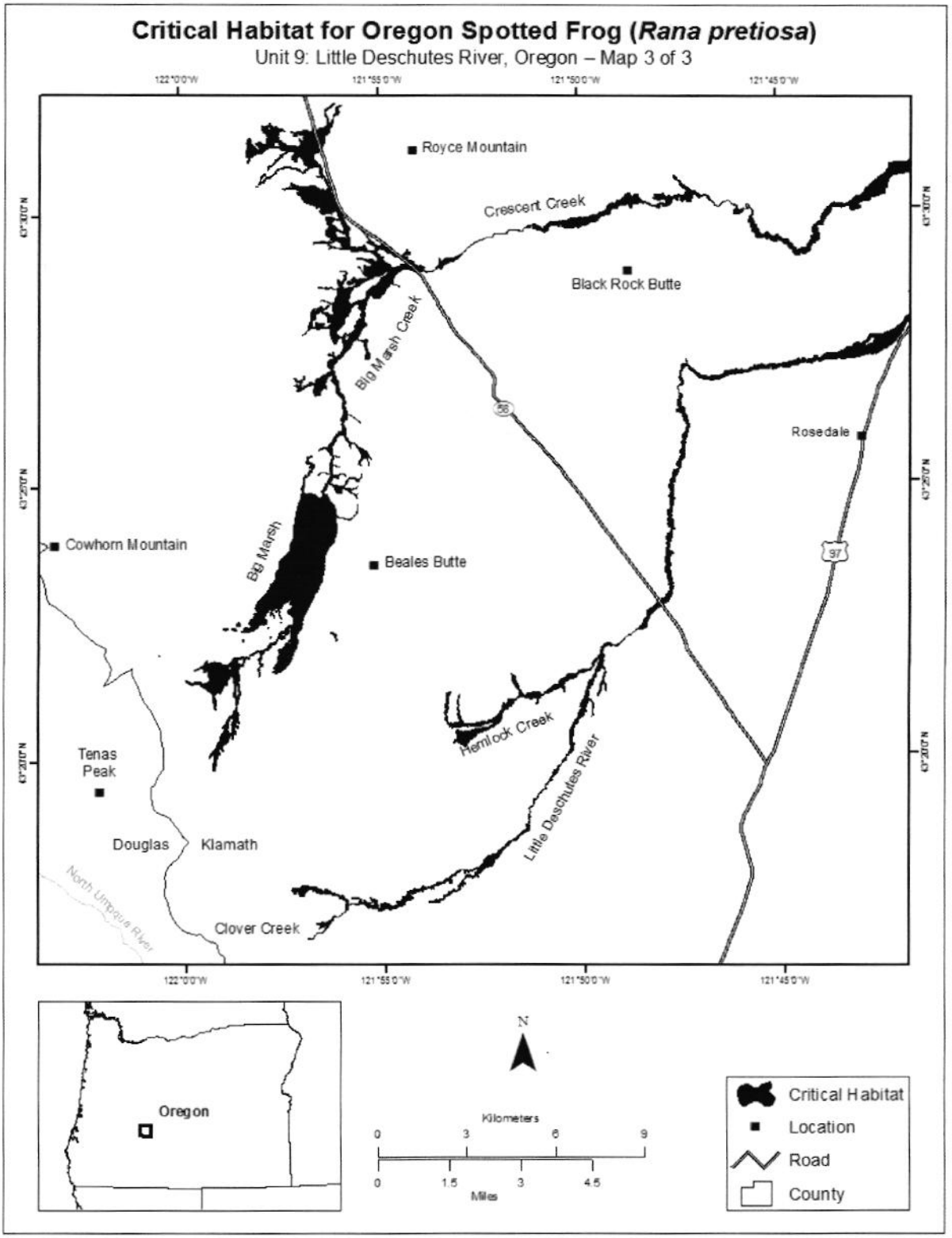

Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 8A: Upper Deschutes River, Subunit: Below Wickiup Dam, Oregon – Map 2 of 2
121°45'0"W
121°40'0"W
121°35'0"W
121°30'0"W
121°25'0"W
Pistol Butte
Deschutes River
Round Mountain
Breese Cemetery
Wickiup Reservoir
Little Deschutes River
97
31
Deschutes
Klamath
Oregon
N
Kilometers
0 3 6 9
0 2 4 6
Miles
Critical Habitat
Location
Road
County

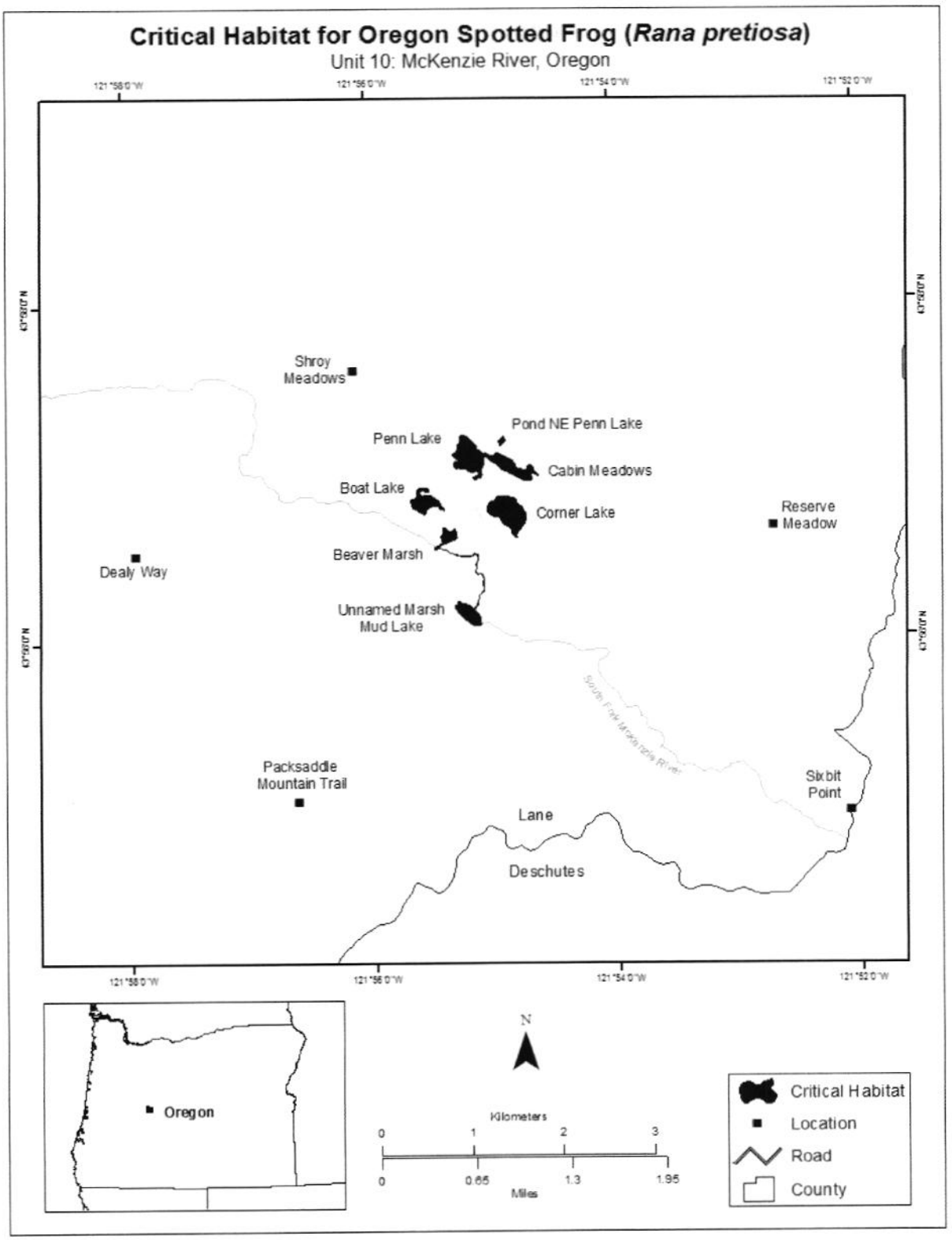

Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 8B: Upper Deschutes River, Subunit: Above Wickiup Dam, Oregon – Map 1 of 2
121°55'0"W
121°50'0"W
121°45'0"W
121°40'0"W
Wickiup Reservoir
Deschutes River
Lane
Pine Butte
Davis Mountain
Davis Lake
Deschutes
Klamath
Maklaks Mountain
Odell Creek
Hamner Butte
Royce Mountain
Little Deschutes River
58
97
Oregon
N
Kilometers
0 3 6 9
0 2 4 6
Miles
Critical Habitat
Location
Road
County

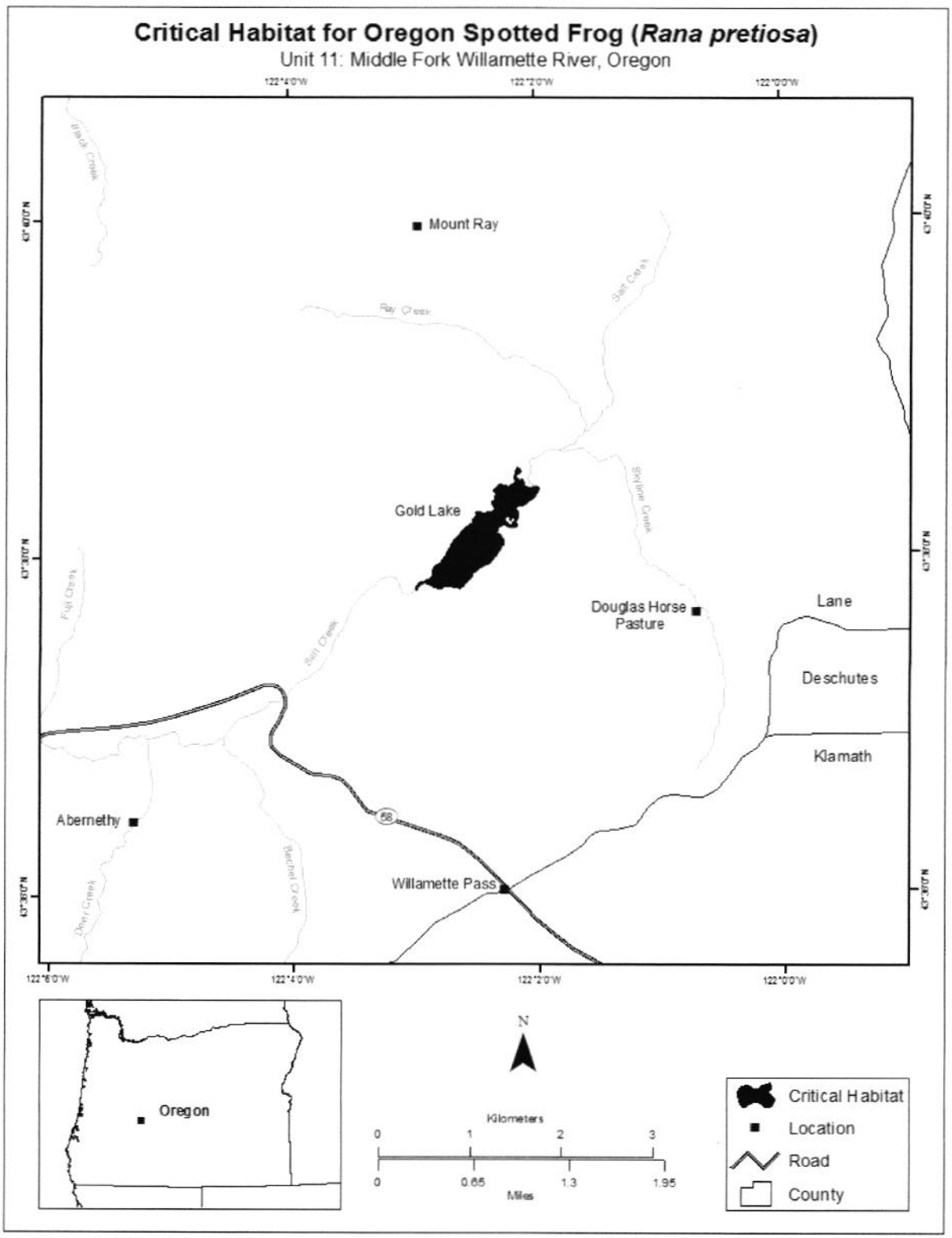

Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 8B: Upper Deschutes River, Subunit: Above Wickiup Dam, Oregon – Map 2 of 2
121°55'0"W
121°50'0"W
121°45'0"W
121°40'0"W
43°55'0"N
43°50'0"N
43°45'0"N
Hosmer Lake
Lane
Deschutes
Lava Lake
Little Lava Lake
Sheridan Mountain
Lucky Butte
Winopee Lake
Deschutes River
Cultus Lake
Cultus Creek
Deer Creek
Pillar Peak
Little Cultus Lake
Crane Prairie Reservoir
Round Mountain
Oregon
N
Kilometers
0 3 6 9
0 2 4 6
Miles
Critical Habitat
Location
County

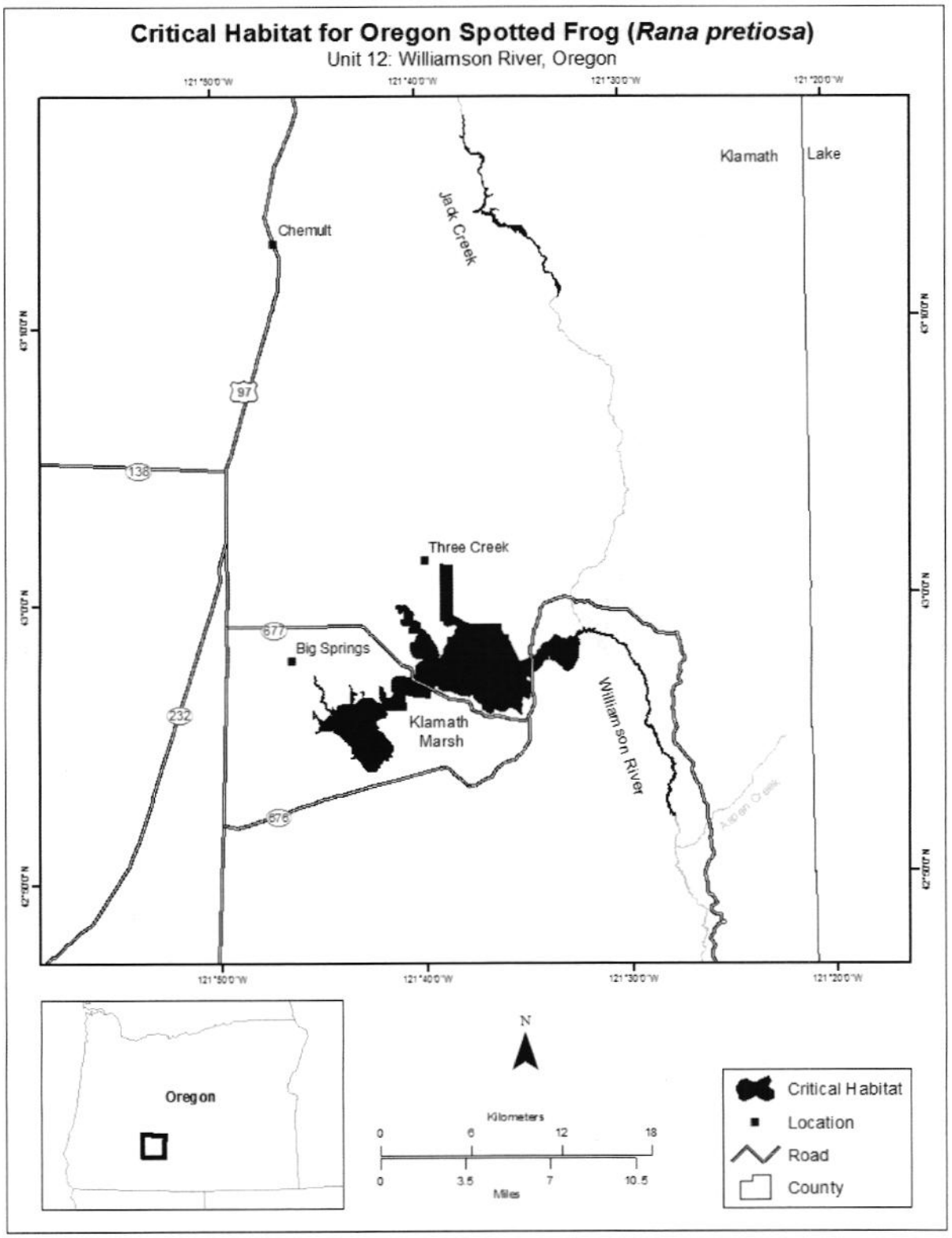

Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 9: Little Deschutes River, Oregon – Map 1 of 3
121°40'0"W
121°35'0"W
121°30'0"W
121°25'0"W
43°50'0"N
43°45'0"N
43°40'0"N
Pistol Butte
97
Deschutes River
Breese Cemetery
Little Deschutes River
La Pine
Haner Butte
Finley Butte
Lone Pine Slough
Deschutes
Klamath
31
Oregon
N
Kilometers
0
3
6
9
Miles
0
1.5
3
4.5
Critical Habitat
Location
Road
County

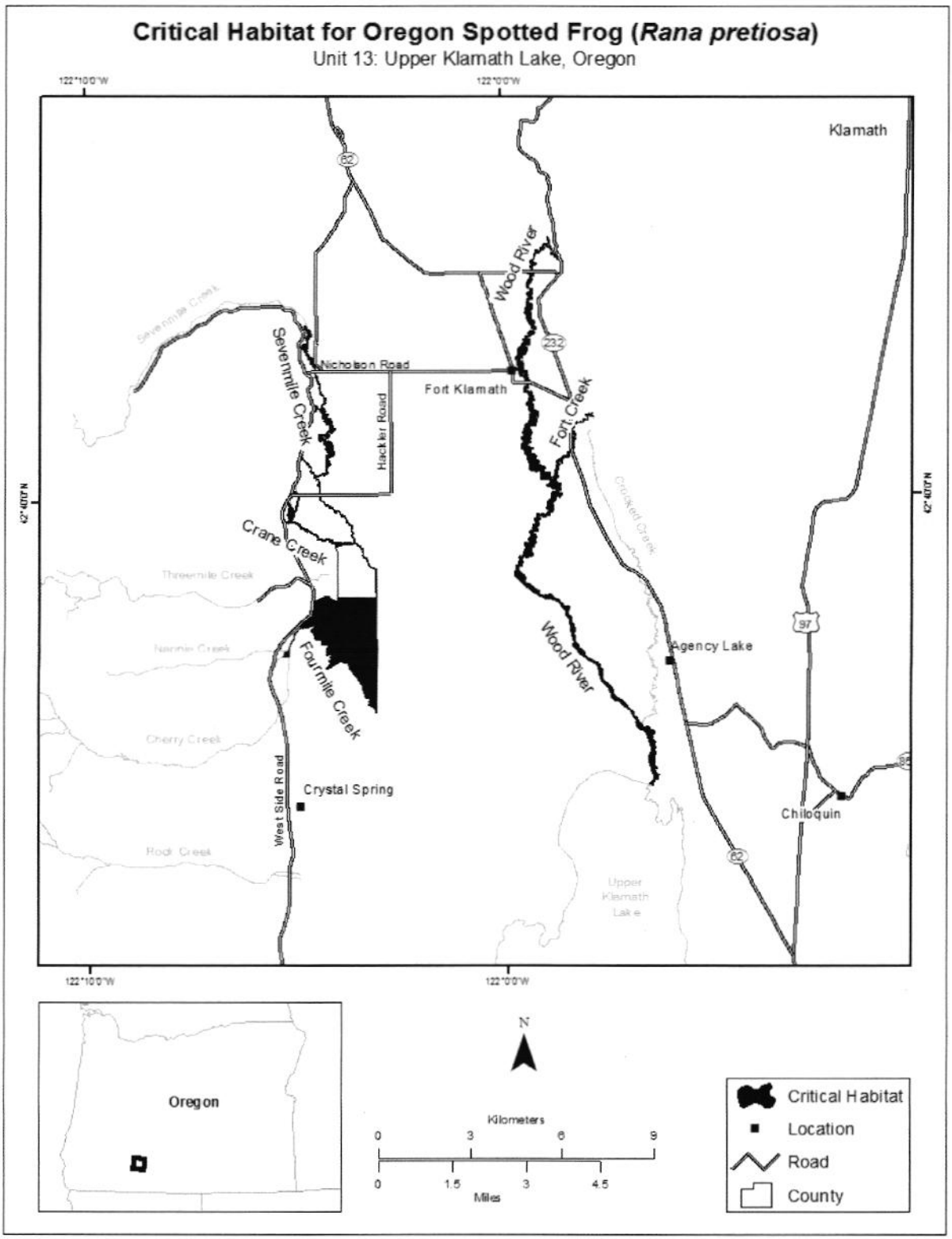

Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 9: Little Deschutes River, Oregon – Map 2 of 3
Deschutes
Klamath
Cryder Butte
Lone Pine Slough
Crescent Creek
Black Rock Butte
Crescent
Little Deschutes River
Rosedale
97
31
58
121°45'0"W
121°40'0"W
121°35'0"W
121°30'0"W
43°30'0"N
43°25'0"N
43°20'0"N
Oregon
N
Kilometers
0 3 6 9
Miles
0 1.5 3 4.5
Critical Habitat
Location
Road
County

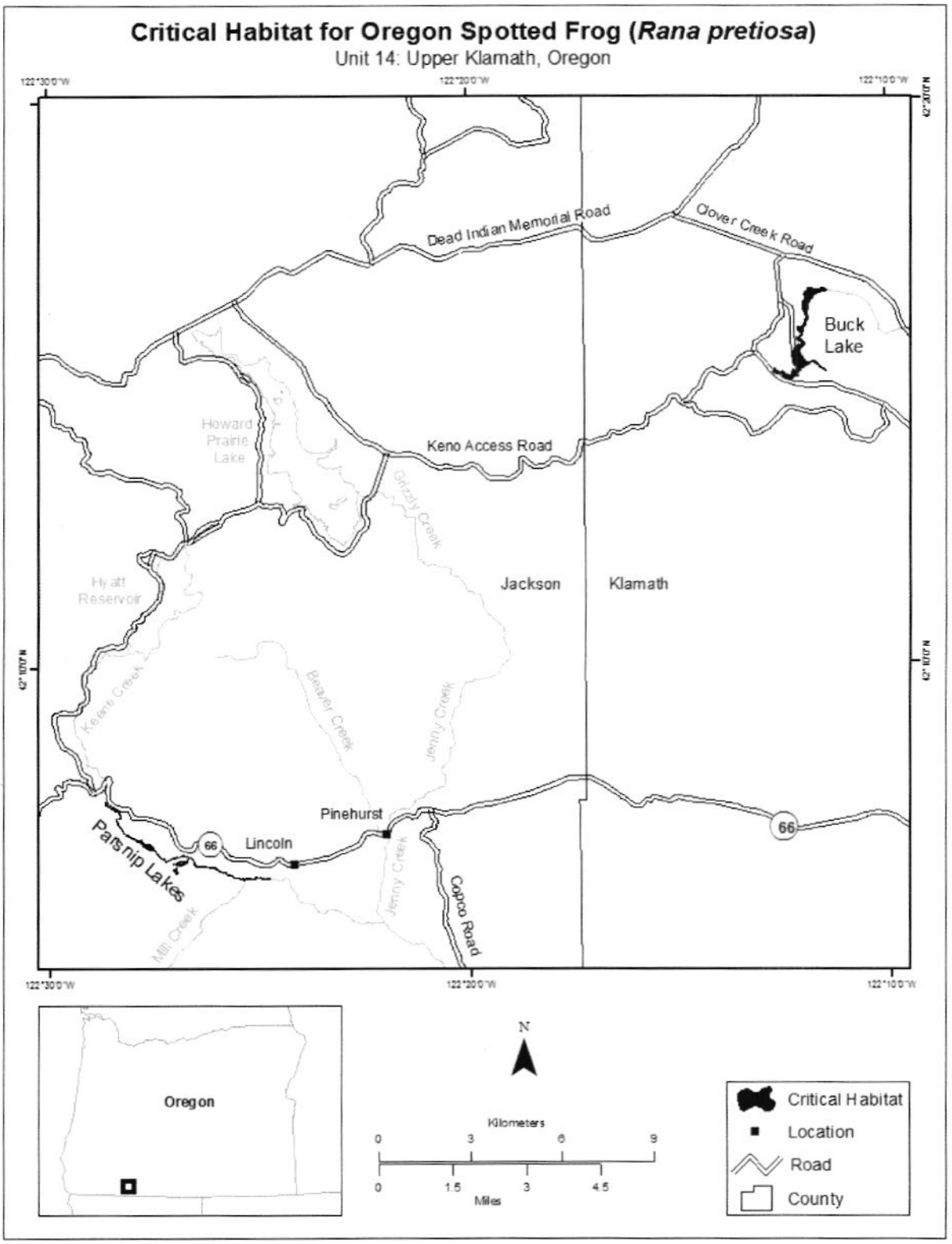

Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 9: Little Deschutes River, Oregon – Map 3 of 3
122°0'0"W
121°55'0"W
121°50'0"W
121°45'0"W
43°30'0"N
43°25'0"N
43°20'0"N
Royce Mountain
Crescent Creek
Black Rock Butte
Big Marsh Creek
58
Rosedale
97
Cowhorn Mountain
Big Marsh
Beales Butte
Hemlock Creek
Little Deschutes River
Tenas Peak
Douglas
Klamath
North Umpqua River
Clover Creek
Oregon
N
Kilometers
0 3 6 9
Miles
0 1.5 3 4.5
Critical Habitat
Location
Road
County


Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 10: McKenzie River, Oregon
121°58'0"W
121°56'0"W
121°54'0"W
121°52'0"W
44°0'0"N
43°58'0"N
Shroy Meadows
Pond NE Penn Lake
Penn Lake
Cabin Meadows
Boat Lake
Corner Lake
Reserve Meadow
Beaver Marsh
Dealy Way
Unnamed Marsh
Mud Lake
South Fork McKenzie River
Packsaddle Mountain Trail
Sisbit Point
Lane
Deschutes
Oregon
N
Kilometers
0
1
2
3
0
0.65
1.3
1.95
Miles
Critical Habitat
Location
Road
County


Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 11: Middle Fork Willamette River, Oregon
122°4'0"W
122°2'0"W
122°0'0"W
43°8'0"N
43°6'0"N
43°4'0"N
Mount Ray
Ray Creek
Salt Creek
Gold Lake
Douglas Horse Pasture
Lane
Deschutes
Klamath
Fuji Creek
Abernethy
58
Willamette Pass
Bachel Creek
Deer Creek
122°6'0"W
Oregon
N
Kilometers
0
1
2
3
0
0.65
1.3
1.95
Miles
Critical Habitat
Location
Road
County


Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 12: Williamson River, Oregon
121°50'0"W
121°40'0"W
121°30'0"W
121°20'0"W
Klamath
Lake
Jack Creek
Chemult
97
138
Three Creek
677
Big Springs
232
Klamath
Marsh
Williamson River
676
Aspen Creek
42°50'0"N
42°40'0"N
42°30'0"N
Oregon
N
Kilometers
0
6
12
18
0
3.5
7
10.5
Miles
Critical Habitat
Location
Road
County


Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 13: Upper Klamath Lake, Oregon
122°10'0"W
122°0'0"W
42°40'0"N
Klamath
Wood River
Sevenmile Creek
Nicholson Road
Fort Klamath
Hackler Road
Fort Creek
Crane Creek
Threemile Creek
Fourmile Creek
Agency Lake
Wood River
Cherry Creek
West Side Road
Crystal Spring
Chiloquin
Rock Creek
Upper Klamath Lake
Oregon
N
Kilometers
0 3 6 9
0 1.5 3 4.5
Miles
Critical Habitat
Location
Road
County


Critical Habitat for Oregon Spotted Frog (Rana pretiosa)
Unit 14: Upper Klamath, Oregon
122°30'0"W
122°20'0"W
122°10'0"W
42°30'0"N
42°20'0"N
Dead Indian Memorial Road
Clover Creek Road
Buck Lake
Howard Prairie Lake
Keno Access Road
Grizzly Creek
Hyatt Reservoir
Jackson
Klamath
Keene Creek
Beaver Creek
Jenny Creek
Pinehurst
66
Lincoln
Parsnip Lakes
Mill Creek
Capco Road
Oregon
N
Kilometers
0 3 6 9
0 1.5 3 4.5
Miles
Critical Habitat
Location
Road
County